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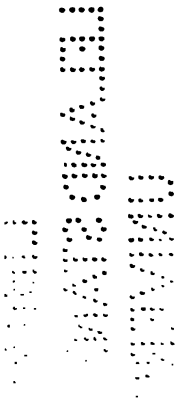

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AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME XVIII.

A monograph of the species of CRYPTOHYPNUS of Boreal America.

BY GEORGE H. HORN, M. D.

In the printed and other comments which were made on Dr. Hamilton's paper on the distribution of many species in common in the Arctic regions of both continents, my attention happened to be drawn especially to this genus from the fact that several forms had just appeared which seemed to be identical with those of Europe, and which had not, as yet, appeared in our lists. These were made the subject of a short note, in "Entomological News," which closer study has shown me to be inaccurate in many of its statements, due in part to the lack of types, and as much to important omissions of details in the best European descriptions. The subsequent pages will show that several of our forms are parallel with those of Europe, in fact deceptively resembling them, but are readily separated by excellent structural characters hitherto unobserved.

The number of species of Cryptohypnus known being less than one hundred, has not made it unwieldy or difficult to handle, consequently but little attempt has been made to subdivide it. C. G. Thomson, in his Skand. Col. vi, restricts the name Cryptohypnus to those species which have the prosternal sutures straight and Negastrius to those with the sutures arcuate, although he seems to place

greater reliance on other characters which have far less value in a larger number of species. He again subdivides Negastrius, separating those species as Zorochrus which have the prosternal sutures double and excavate. If any division of Cryptohypnus be thought necessary, that based on the form of the prosternal sutures appears to be the only one desirable, from the fact that, between the two forms, the sharpest line of demarcation is observed.

The existence of the double grooved sutures in a group of small species was first observed by Thomson, but cannot be used for generic separation as it would remove certain species from that close approximation in which they should be placed. It has also been observed in our species of that series that the groove is far more distinctly defined in the female than in the male. It is in this group that very notable sexual peculiarities exist in the form of tubercles on the first or first two ventral segments in the males of *Melsheimeri* and *caurinus* respectively, or in a small pubescent spot at the middle of the second ventral in the female of *gradarius*. In *quadriguttatus* (*tetragraphus*) and *dermestoides* of Europe, the anterior tibiæ are much broader in the male than in the female. These, too, have an elevation or tubercle on the first ventral segment of the male which seems to have escaped the notice of European students.

Another sexual character has been observed in the two species with non-striate elytra. In the centre of the prosternum of the male is a small, densely punctured spot, bearing, in well-preserved specimens, a short brush of hair.

One species, *littoralis*, is notable in having much shorter legs than normal, the tibiæ beset with short, stiff, bristle-like hairs, after the manner of many arenicolous species. The tibial spurs are also better developed. In the species with the curved prosternal sutures the spurs are far less distinct than in those with straight sutures.

It will be observed also that the terminal joint of the maxillary palpus varies in form, but without that degree of difference enabling the character to be used for systematic purposes. Illustrations will be found on the plate, to which the reader is referred.

The species known to me seem to divide very naturally into groups, and it is proposed so to treat them to avoid the use of a long analytical table.

They are, therefore, divided as follows:

Prosternal sutures straight, parallel, or very little convergent posteriorly.....2.
Prosternal sutures arcuate and very evidently convergent posteriorly.....3.

2.—Tibiæ stouter than usual, the outer side beset with short spinules, the spurs very distinct..... .....Group **LITTORALIS.**

Tibiæ slender, not spinulose externally, the spurs usually very small and indistinct.

Depressed opaque species, thorax coarsely and closely punctate. Group **SQUALIDUS.**

More or less convex and shining, thorax variably punctate, but never opaque, the median line more or less impressed.

Hind angles of thorax slender and divergent, the basal incisure well marked; surface not distinctly pubescent...Group **HYPERBOREUS.**

Hind angles of thorax stouter, scarcely at all divergent, basal incisures feeble; surface pubescent..... ..... Group **ABBREVIATUS.**

3.—Elytra with the striæ entirely, or in great part obliterated; in the latter case, those near the suture alone evident.....Group **PECTORALIS.**

Elytra with all the striæ entire.....4.

4.—Depressed species, dorsum quite flat, surface opaque, densely punctulate and pubescent; hind angles of thorax with short carina. Group **STRIATULUS.**

Convex species.

Thorax coarsely granulate, usually with a smooth elevated median line. Group **CHORIS.**

Thorax unequally sculptured, either subasperate or more densely, coarsely punctate near apex, posteriorly smoother, median line usually smooth Group **MELSHEIMERI.**

Thorax equally punctate, either sparsely or moderately closely; elytra ornate..... .... Group **PERPLEXUS.**

The groups which follow are arranged in a manner to show what seems to be a natural sequence based on facies.

In conclusion, I wish to acknowledge my indebtedness to Dr. Hamilton and Mr. Ulke for the loan and gift of specimens, and to Mr. Blanchard for first having called my attention to the pubescent spot in the abdomen of *gradarius*, thereby suggesting a new line of investigation which has resulted profitably.

Group LITTORALIS.

Prosternal sutures straight, very nearly parallel. Maxillary palpi moderate in length, the last joint elongate oval, obliquely truncate at apex. Tibiæ shorter than usual, the outer edge beset with short spinules, the terminal spurs well marked. Form robust, body apterous.

This group contains but one species so unlike those which follow, as to lead to the supposition that it should be more completely separated. There are, however, no differences of sufficient importance to warrant generic separation.

C. littoralis Esch.—Form robust, convex, brownish piceous or darker ferruginous, scarcely shining, sides of thorax (more broadly beneath) and elytra, antennæ and legs yellowish testaceous; antennæ rather stout, joints 6-10 as broad as long, eleventh oval; head sparsely, rather coarsely punctate; thorax broader at middle than long, sides arcuate, sinuate in front of the hind angles, which are acute and feebly divergent, the carina short, but well marked; disc sparsely punctate, basal margin without trace of incisure; elytra oval, humeri obliquely rounded, disc rather deeply striate, striæ not punctate, intervals convex, sparsely punctate near the base, gradually becoming granulate toward the apex; body beneath piceous, except the flanks of the prothorax, these finely punctate externally, more coarsely near the margin; under surface punctate, but not closely, except on the last ventral segment, which is quite rugose. Length 8—11.5 mm.; .32—.46 inch.

In well preserved specimens the surface above and beneath is sparsely fulvo-pubescent. A variety entirely yellowish is mentioned by Mannerheim and Candéze, not the result of immaturity, as might be suspected, but truly varietal, as has been observed in many species living along the sea-coast.

Seems to be abundant on the Alaskan sea-coast.

Group HYPERBOREUS.

Prosternal sutures straight, very slightly convergent posteriorly. Legs slender, tibial spurs small. Maxillary palpi not prominent, the last joint triangular, as in the *squalidus* group. Thorax smooth, sparsely punctate, median line more or less impressed, the basal incisures distinct, hind angles long, slender and divergent. Surface nearly, or quite glabrous, body winged.

This group contains but three species, as far as known to me, especially notable by their oblong, feebly convex form, nearly glabrous surface, subsulcate thorax with slender hind angles.

The species are separated as follows:

Antennæ entirely ferruginous.
  Antennæ rather slender, the joints longer than wide.....**grandicollis.**
  Antennæ stouter, joints triangular, as wide as long.....**hyperboreus.**
Antennæ piceous, except at base, the joints longer than wide.
  Elytral intervals flat.....**Sanborni.**
  Elytral intervals convex.....**barbatus.**

These inhabit the more northern or elevated regions of our country, one of them (*hyperboreus*) having a circum-polar distribution in both hemispheres.

C. grandicollis Lec.—Oblong, moderately convex, piceous shining, with faint metallic lustre, elytra paler than the thorax; surface scarcely pubescent; antennæ ferruginous, joints all longer than wide; front flat, coarsely not closely

punctate; thorax distinctly longer than wide, sides scarcely arcuate, hind angles very slightly divergent, distinctly carinate, carina short, disc moderately convex, median line vaguely impressed posteriorly; surface sparsely punctate, a little more closely in front and near the front angles; elytra a little wider than the prothorax at their middle, humeri obtusely rounded; disc moderately convex, rather deeply striate, striæ punctate, intervals slightly convex, sparsely punctate; prosternum moderately coarsely, but sparsely punctate, the lobe moderately prominent, arcuate in front, limited behind by a feeble transverse line, propleuræ moderately closely coarsely punctate, with finer punctures between, not opaque; metasternum moderately closely punctate, punctuation coarse and fine intermixed; abdomen similarly punctate, the last segment more coarsely; legs rufotestaceous; entire body beneath paler than above. Length 9 mm.; .36 inch.

A much more robust species than any of this group and with the thorax of larger area relative to the elytra.

A specimen in the LeConte cabinet, which I have no doubt is the male, has a rather more slender form, the sides of thorax sinuate in front of the hind angles, which are consequently more slender and divergent. Its color is slightly darker. These differences, in view of the opposite sex of the specimens, seem purely sexual and not specific.

Occurs in Canada and Oregon, ♂.

C. hyperboreus Gyll.—Moderately elongate, depressed, piceous brown, moderately shining, antennæ and legs ferruginous; surface very sparsely pubescent; antennæ short, joints 4–10 as wide as long; head slightly convex at middle, sparsely punctate; thorax as broad as long ♀, or a little longer ♂; scarcely narrowed in front, sides regularly arcuate in front of the hind angles which are slender, divergent, and with a short carina; surface shining, sparsely punctate, median line vaguely impressed; elytra wider than the thorax, oblong oval, widest at middle, humeri rounded, disc rather depressed, finely striate, striæ indistinctly punctate at middle, intervals flat, sparsely punctate; prosternum sparsely punctate at middle, densely and finely at the sides, the lobe moderately prominent, arcuate in front, limited behind by a transverse impression, propleuræ densely finely punctate, with coarser punctures intermixed, rather opaque, distinctly pubescent; metasternum sparsely punctate; abdomen closely punctate with coarse and fine punctures intermixed, and with fine brownish pubescence. Length 6.5—8 mm.; .26—.32 inch.

This species is very nearly as depressed as those of the *squalidus* group. It is paler in color than *Sanborni*, and without the faint metallic lustre of that species and differing also in the color of the antennæ.

This species is known from Lapland, Siberia, Kamtschatka, and on our own continent in Alaska.

C. Sanborni Horn.—Oblong, moderately convex, piceous black, moderately shining, sometimes with a faint bronze surface lustre, very slightly pubescent; antennæ slender, feebly serrate, joints all longer than wide, basal joints

rufo-testaceous, the outer joints piceous; head sparsely punctate; thorax longer than wide, not narrowed in front, widest at middle, sides feebly arcuate, sinuate in front of the hind angles, which are slender, acute, distinctly divergent and carinate above, disc moderately curved, the median line vaguely impressed from base to apex, basal incisures distinct; surface sparsely finely punctate; elytra oblong oval, widest behind the middle, humeri oblique, disc striate, striæ distinctly punctured, intervals flat, sparsely punctate, but more coarsely than the thorax; prosternal lobe moderately prominent, the border distinctly beaded, a transverse impression posteriorly, coarsely punctate in front, more finely and sparsely toward apex, punctuation at sides denser and intermixed, propleuræ rather densely punctate and more opaque, with coarser and fine punctures intermixed; epipleuræ pale; metasternum and abdomen rather densely punctulate with coarser punctures intermixed; legs rufo-testaceous, tarsi darker. Length 5.5—7 mm.; .22—.28 inch.

The hind angles of the thorax at tip, the epipleuræ of the elytra and a narrow border of the under side of thorax are usually rufescent. The median line of the thorax, although feeble, is distinctly impressed from base to apex; all the striæ of the elytra are punctate.

Occurs in the White Mountain region of New Hampshire, where it was first collected by Mr. F. G. Sanborn, and since by Blanchard, Henshaw and others.

C. barbatus Sahlb.—Oblong, moderately convex, piceous black, moderately shining, sparsely clothed with short, inconspicuous, brownish pubescence; antennæ slender, feebly serrate, piceous, the two basal joints pale; head rather coarsely punctate, front triangularly flattened, the middle of the triangle elevated in an umboue; thorax longer than wide, very little narrowed in front, sides feebly arcuate, sinuate in front of the hind angles, which are slender and slightly divergent, carina well marked, but short; disc convex, a median impression reaching the base and very nearly the apex; surface moderately coarsely punctate in front and at sides, smoother at middle and near base; elytra oblong-oval, wider slightly behind the middle, humeri rounded, disc convex, deeply striate, striæ punctate, intervals convex, moderately closely punctate; prosternum transversely impressed, rather finely punctate behind the groove, very coarsely in front, the lobe moderately prominent, subtruncate; propleuræ opaque, slightly ruguloee, coarsely sparsely punctate; epipleuræ pale; abdomen closely punctate with coarser punctures intermixed, especially near the sides; legs rufo-testaceous, the tarsi piceous. Length 6.5 mm.; .26 inch.

Very close to *Sanborni*, and possibly only an Arctic form of it. The pubescence of the prosternal lobe seems to have been rather exaggerated in importance and extent, as all the species of the present and the *abbreviatus* groups have a slight pilosity in that portion not by any means dense, and often lost by abrasion.

I owe to Dr. Sahlberg the privilege of examining a typical specimen. Occurs in the vicinity of St. Lawrence Bay extending to Port Clarence on the American coast.

Group **ABBREVIATUS.**

Prosternal sutures straight, nearly parallel. Maxillary palpi moderate in length, the last joint triangular, truncate at apex. Legs not long, tibiæ not spinulose externally, terminal spurs small. Thorax with median line more or less impressed, the basal incisures feebly distinct, hind angles, at most, but little everted, the carina not long. Surface pubescent. Body winged.

The group here defined is with difficulty separated by description from the one preceding, but the more convex form, pubescent surface and less prominent hind angles seem sufficient.

The species composing the group occur in the Arctic regions of both continents, extending southward in the more northern portions of the temperate region, and along the mountain ranges in the higher altitudes still more to the south.

In consequence of the wide distribution of the species and the varied climatic influences to which they are subjected, a great amount of variation has been produced. This range of distribution is from Labrador on the east to northern California on the west, and in the centre of the continent extending southward along the Rocky Mountains to New Mexico, thence northward in every part of British America to the extreme of the Alaskan peninsula.

In the great quantity of material examined I have not been able to separate more than three species:

Scutellum conspicuously clothed with pale pubescence, that of the elytra somewhat scale like.

Thorax narrowed in front in its apical two-thirds, sides often obtusely subangulate in front of the angular sinuation; elytra with a denser spot of pubescence near the apex ..... **abbreviatus.**

Thorax arcuate near the apex only, the sides thence nearly straight; elytra without spot of denser pubescence near tip..... **impressicollis.**

Scutellum sparsely punctate and smooth, with scarcely any pubescence; surface simply sparsely pubescent; thorax usually very sparsely punctate, the median impression very indistinct..... **noctumus.**

C. abbreviatus Say.—Oblong, moderately convex, piceous, with greenish bronze surface lustre, sparsely clothed with yellowish cinereous pubescence, somewhat scaly in appearance, forming a conspicuous elongate space on the elytral declivity; antennæ feebly serrate, either entirely piceous, or with the basal joints paler; head coarsely not closely punctate, the frontal margin scarcely distinct from the clypeal; thorax slightly broader than long, narrowed in front, sides scarcely arcuate, but obtusely subangulate behind the middle, then sinuate in front of the hind angles, these acute but not slender, scarcely divergent, carinate; disc convex, with a median impression usually extending from base to apex and deeper behind, basal incisures feeble, surface shining, moderately

closely, not coarsely punctate, pubescence somewhat brownish; scutellum rather densely clothed with paler yellowish hairs; elytra a little wider than the thorax, widest one-third from base, humeri rounded, sides arcuate, gradually narrowed in apical two-thirds, but obtuse at tip; disc convex, striate; striæ all punctate, intervals flat, moderately closely and finely punctate; body beneath piceous, finely fulvo-pubescent, epipleuræ usually paler; prosternum sparsely punctate at middle, at sides intermixed and finely pubescent, the lobe very coarsely punctate, moderately prominent; propleuræ opaque, finely and closely punctate metasternum moderately closely punctate with intermixed punctures; abdomen very finely and closely punctulate, the punctures unequal; legs rufo-testaceous, the femora usually darker. Length 5.25—6.5 mm.; .21—.26 inch.

This species varies in color from piceous black to brown, the elytra being often quite pale. It may also vary in the form of the sides of the thorax, the subangulation being scarcely evident in some (*lacustris*), but the thorax is always narrowed in its apical two-thirds. The striæ of the elytra may vary in sharpness, and their punctures are sometimes scarcely evident on the disc.

The spot of pale pubescence near the apex is quite characteristic, and its distinctness is not due to the abrasion of the rest of the surface. In well preserved specimens the greater portion of the elytral pubescence is finer and more brown, consequently less distinct.

No special sexual characters have been observed.

Occurs from Nova Scotia westward through Massachusetts, New York, Canada, Hazleton, Pa. (Dietz), to Oregon and Alaska.

C. impressicollis Mann.—Oblong, moderately convex, piceous or brownish, the elytra paler, surface slightly æneous, the pubescence sparse, pale brownish, rather dense and fulvous on the scutellum; antennæ feebly serrate, piceous, the basal joints paler; head coarsely, moderately closely punctate, the frontal margin scarcely elevated; thorax scarcely wider than long, sides nearly straight, arcuately narrowed near the front, a faint trace of a sinuation near the angles, these acute, scarcely at all divergent; the carina feeble, basal incisures distinct; disc convex, the median channel distinct from base to apex; surface moderately closely punctate and (for this group) rather coarsely, pubescence fulvous; scutellum rather closely pubescent; elytra oblong-oval, widest near the middle, the humeri rounded; disc convex, moderately deeply striate, striæ all punctate, intervals flat, rather closely punctate and posteriorly slightly asperately; body beneath piceous, finely pubescent and subopaque, epipleuræ paler; prosternum sparsely punctate, more coarsely in front and more finely at the sides; propleuræ opaque, with dense fine punctures, with coarser intermixed, metasternum finely indistinctly punctate, punctuation double; abdomen densely finely punctate, with coarser punctures intermixed at the sides; legs rufo-testaceous, femora darker. Length 5–6 mm.; .20–.24 inch.

This species superficially resembles *abbreviatus*, but the form of the thorax and the absence of the spot of pubescence near the apex will

distinguish it. It will be observed in *abbreviatus* that the sides of the prosternum have a well marked, fine silken pubescence, but in this there is no such character.

In one of the specimens before me the elytra are paler at apex.

While I have not seen a type of this species I am quite sure that the forms examined are similar to the unique described by Mannerheim.

Occurs in Alaska, Oregon, Hudson's Bay Territory and Colorado (rare).

C. nocturnus Esch.—Oblong, moderately convex, color variable, surface shining and with slight æneous lustre, sparsely pubescent; antennæ feebly serrate, piceous, the basal joints often paler; head coarsely, not closely punctate, frontal border feebly elevated; thorax as wide as long, slightly narrowed in front, sides arcuate, widest at middle, a slight sinuation in front of the hind angles, these feebly everted, distinctly carinate, disc moderately convex, median impression feeble, rarely visible in front of the middle; surface finely, sparsely punctate; elytra oblong, a little wider at middle than the thorax, humeri obtusely rounded, striate, striæ all punctate, intervals flat, or slightly convex near the base, sparsely finely punctate; scutellum sparsely punctate, scarcely at all pubescent; body beneath paler than above, the epipleuræ especially so; prosternum very sparsely punctate, even on the lobe, sparsely cinereo-pubescent at the sides, the lobe moderately prominent; propleuræ opaque, closely and very finely punctate with coarser punctures intermixed; metasternum and abdomen with fine, indistinct punctures, moderately closely placed, with slightly larger punctures intermixed; legs rufo-testaceous, femora always darker. Length 4—5.5 mm.; .16—.22 inch.

A variable species, widely spread over the northern part of the continent, and with an unnecessary amount of nomenclature, the result of local or climatic variation. A few varieties seem to deserve mention.

Var. *nocturnus* Esch.—Larger in size, piceous black, with æneous surface lustre. The *double* punctuation of the abdomen scarcely evident, except at the sides. The hind angles of the thorax are not paler than the disc. Alaska, Oregon, California, Nevada.

Var. *lucidulus* Mann.—Smaller than *nocturnus*, and with rather paler surface and less distinct æneous surface lustre. The hind angles of the thorax are usually paler. The punctuation of the under side of body is more distinct, and its double character more evident. Of this form *fallax* Mann. and *vestitus* Mann. are merely individual variations. Alaska, Hudson's Bay, New Hampshire.

Var. *bicolor* Esch.—Still smaller, the hind angles of the thorax and the elytra castaneous, with very feeble metallic surface lustre.

Punctuation of under side coarser, its double character very evident. Of this *scarificatus* and *limbatus* Mann. are feeble varieties, and *picescens* Lec. a synonym. Alaska, Oregon, Hudson's Bay, Dacota, Idaho, Utah, Montana, Colorado, New Mexico, Lake Superior, Canada, Labrador, New Hampshire.

On comparing these forms with *abbreviatus* and *impressicollis*, it will be observed that the vestiture is finer and sparser, the scutellum nearly glabrous. The thorax is always more sparsely and finely punctured. The form is also less convex and more elongate.

Candéze states (Mon. iii, p. 68) that *riparius* Fab. occurs in the polar regions of our continent. I have not seen any specimens that I am willing to refer to that species, although some of the forms of *lucidulus* have the dorsal striæ so feebly punctured that they might be considered smooth. The study of the material before me leads to the thought that all the species from the Arctic regions of both continents need a renewed study with a larger number of specimens than seems to have been used.

Group SQUALIDUS.

Prosternal sutures straight and parallel, or very slightly convergent posteriorly. Maxillary palpi not prominent, the terminal joint triangular. Legs slender and moderately long, the tibiæ not spinulose, the terminal spurs small and inconspicuous. Form oblong, much depressed; surface opaque, densely punctured, sparsely pubescent. Body distinctly winged.

This group is represented in our fauna by three species, and a fourth (*depressus*) from Siberia should probably be referred here. The flattened form and opaque surface are repeated in the *striatulus* series, but these have the strongly arcuate prosternal sutures.

The three species are as follows:

Antennæ and legs always pale; under side of body finely pubescent with longer scale-like hairs sparsely scattered..... **squalidus.**

Antennæ and legs piceous, sometimes the tibiæ are pale; vestiture of under side uniform.

Surface very opaque..... **funebris.**

Surface slightly æneous..... **planatus.**

C. squalidus Lec.—Oblong, piceous black, opaque, sparsely clothed with very short brownish pubescence, with silken yellow sparsely intermixed; head coarsely, not closely punctate; antennæ not reaching the hind angles of the thorax, feebly serrate, joints all longer than wide, the eleventh but little longer than the tenth; thorax longer than wide, distinctly narrowed in front, sides regularly arcuate, sinuate in front of the hind angles, these slightly divergent,

acute, distinctly carinate; surface moderately closely, but not densely punctate, very evidently longitudinally strigose; disc feebly convex, a distinct basal incisure opposite the fifth stria; elytra slightly wider posteriorly than the thorax, humeri oblique, sides feebly arcuate, more so in the ♀; disc sub-depressed, striate, striæ punctured, more coarsely at sides, especially near the humeri; intervals flat, rather closely punctate; prosternal lobe long, its apex with a feebly beaded edge and without a transverse impressed line posteriorly; surface coarsely, not closely punctured, feebly pubescent, propleuræ opaque, coarsely sparsely punctate and distinctly pubescent; metasternum and abdomen sparsely coarsely punctate, with extremely fine punctuation closely placed between them, the vestiture of pale brown, fine pubescence with intermixed golden scale-like hairs. Length 7.5—8.5 mm.; .30—.34 inch.

The male is more slender and parallel than the female, but shows no other differences.

Occurs in California at San Jose and vicinity.

C. funebris Cand.—Oblong, depressed, black, opaque, finely pubescent; legs piceous, sometimes with the tibiæ paler; head coarsely and moderately closely punctate; antennæ piceous, feebly serrate, the joints all longer than wide; maxillary palpi not prominent, the last joint triangular; thorax a little longer than wide, scarcely narrowed in front, widest at middle, sides regularly feebly arcuate, sinuate in front of the hind angles, which are acute, slightly divergent and with a short carina; disc feebly convex, a distinct incisure each side of base; surface very densely punctured and without strigosity; elytra a little wider than the prothorax, the sides nearly parallel, narrowed at apical third, striate, striæ punctured, intervals flat, closely punctate and quite rugous at base; prosternal lobe moderately prolonged, its edge distinctly beaded, and with a deeply impressed marginal line and another transverse line of variable distinctness posteriorly, coarsely and closely punctate in front of the transverse line, more finely posteriorly; propleuræ very opaque, very scabrous; metasternum and abdomen closely finely punctulate, but not opaque, finely cinereo-pubescent. Length 7.5—8.5 mm.; .30—.34 inch.

This species is more opaque and blacker than either of the other species, while the punctuation of the thorax is dense and simple, not strigose. The sculpture of the metasternum shows but few coarser punctures and these near the middle, while the abdomen is entirely free of them. The legs may be entirely piceous, or have the tibiæ somewhat paler. There is absolutely no surface lustre in this species.

Occurs in California and western Nevada.

C. planatus Lec.—Oblong, nearly parallel, depressed, black, with faint bronze tinge above, beneath opaque; antennæ black, a little longer than the head and thorax, feebly serrate, joints all longer than wide; head coarsely and moderately closely punctate; thorax distinctly longer than wide, widest slightly behind the middle, not narrower in front, sides feebly arcuate, sinuate in front of hind angles, which are slender, acute and slightly divergent, distinctly carinate; disc feebly convex (basal incisures distinct), coarsely, not densely punctate,

except near the front angles, punctures slightly strigose; elytra scarcely wider than the thorax, parallel ♂, or slightly wider behind ♀, humeri rounded; disc striate, striæ punctured, intervals flat, transversely wrinkled, irregularly triseriately, submuricately punctate; prosternal lobe moderately prominent, the edge with distinct bead, a transverse impressed line posteriorly in front of which the lobe is densely coarsely punctate, then for a short distance sparsely punctate, followed by a coarse, denser punctuation, with finer punctures intermixed; metasternum coarsely punctate, closely near middle, more sparsely laterally, the intervals finely closely punctate; abdomen closely, finely punctate, with scattered larger punctures more numerous in front and on the apical segment. Length 7.5—10 mm.; .30—.40 inch.

In well preserved specimens the pubescence of the upper surface is short and inconspicuous; beneath very fine cinereous or fulvous. This is the only species of the group with a faint bronze surface, consequently less opaque than *squalidus* or *funebris*. While closely related to the latter the punctuation of its upper surface is less dense, the antennæ longer, and the punctuation of the under surface more intermixed and coarser.

The name given to this species was previously made use of by Eschscholtz, but that being identical with *hyperboreus*, and the name consequently suppressed, there seems to me no great objection to its use for the present species.

Occurs in western Pennsylvania, New York and Canada, White Mountains (Austin).

Group STRIATULUS.

Prosternal sutures arcuate and convergent behind. Maxillary palpi not prominent, the last joint elongate triangular. Thorax densely punctured and opaque, with, at most, a smooth median line, base without incisures, carina of hind angles short. Elytra striate, equally at the sides. Legs slender, the tibial spurs small. Form depressed. Body winged.

The only species composing this group resembles a diminutive *planatus*, but differs from that group by the form of the prosternal sutures. The peculiar sculpture of the thorax in the *choris* and *Melsheimeri* groups will prevent its being placed with them, the *perplexus* series is convex, shining and ornate, while the *tumescens* group is convex without ornamentation.

C. striatulus Lec.—Oblong, subdepressed, piceous black, opaque, finely cinereo-pubescent; legs pale, the femora darker; antennæ slender, black, feebly serrate; head feebly convex, densely rugosely punctate; thorax a little wider than long, narrowed in front, sides arcuate, slightly sinuate in front of the hind

angles, which are stout, slightly everted, and with a short carina; disc feebly convex, densely finely punctate, the median line usually smooth, but not always; elytra as wide as the thorax, humeri obtuse, sides nearly parallel for two-thirds then arcuate to apex; disc rather flat, striate, equally from middle to sides, striæ punctate, intervals feebly convex, densely and finely punctulate, the surface opaque; prosternum moderately closely punctate, more densely and finely at the sides, the lobe short and subtruncate, the transverse impression distinct; propleuræ closely finely punctate, not opaque; metasternum and abdomen densely punctate, a little more closely than the propleuræ. Length 3—4 mm.; .12—.16 inch.

An easily known species by the group characters alone. In some specimens the basal joints of the antenne are somewhat paler, but these specimens have the under side somewhat paler also, and are probably less mature.

The distribution of this species is rather remarkable. Originally described from the Lake Superior region, it extends westward to Oregon (Wickham) and northern California, eastward to Ohio (Dury) and Allegheny, Pa (Hamilton).

Group CHORIS.

Prosternal sutures arcuate and convergent posteriorly. Maxillary palpi moderately prominent, the last joint elongate triangular. Form convex. Elytra deeply striate, more or less ornate. Thorax roughly granulate, the median line usually finely elevated and smooth; surface more shining.

The species of this group seem naturally to fall together by the very rough sculpture of the entire surface of the thorax. In the *dermestoides* group the thorax is somewhat granulate in front, but comparatively smooth posteriorly. To this group belong *pulchellus* and *sabulicola*, probably also *curtus* and *alysidotus* of the European fauna.

The species known to occur in our fauna may be separated in the following manner:

Apical margin of thorax truncate at middle.
  Form gibbous, strongly arched when viewed laterally; carinæ of hind angles short; entirely pale above.....**delumbis.**
  Form normal, not very convex; carinæ of hind angles long; color black, ornate with yellow.
    Antennæ with three basal joints pale yellowish testaceous; legs always entirely pale.....**choris.**
    Antennæ piceous, very little, if at all, paler at base; legs with the femora at least fuscous or piceous.
      Elytra gradually attenuate in their posterior third.....**exiguus.**
      Elytra not attenuate, apex obtuse.....**ornatus.**
Apical margin of thorax arcuate at middle, slightly prolonged over the head and somewhat elevated.....**cucullatus.**

C. delumbis n. sp.—Oblong, narrowed posteriorly, rather strongly arched, when viewed laterally, convex; color above ochreous, the thorax ferruginous, the head darker, elytra with vague fuscous spaces, often absent, beneath piceous or brown, the last ventral segment and prosternal lobe pale; antennæ entirely pale, the outer joints scarcely longer than wide; head flat, granular; thorax distinctly longer than wide, sides slightly arcuately narrowed from middle to apex, nearly straight posteriorly, angles not divergent, the carina well marked, but short, disc convex, the median line finely elevated and smooth; surface closely granular, not forming striæ; elytra acutely oval, narrowed almost from the base, humeri obliquely rounded; disc deeply striate, striæ rather wide, coarsely not closely punctate, intervals convex, flatter at apex; surface submuricately punctate; prosternum closely and rather roughly punctate, distinctly transversely impressed in front, the lobe moderately prominent, but obtuse; propleuræ closely punctate; metasternum rather short, coarsely and closely punctate; abdomen densely submuricately punctate, becoming granulate on the last two segments; legs pale yellowish testaceous. Length 4—5 mm.; .16—.20 inch.

This species is remarkable in its sharply arched form when viewed laterally, as well as by the pale color of the surface. The elytra are usually pale ochreous, but some specimens have a fuscous space on the declivity of broadly crescentic form extending forward by its outer angle parallel with the margin. The carina of the hind angles is short, *i.e.*, extending but little in front of the angles themselves, while in all the other species of the group it extends nearly or quite three-fourths to the apex.

Specimens were sent me many years ago by Mr. F. G. Sanborn, collected by him in some numbers at Truro, Mass., a town on the Cape Cod peninsula. It should occur in other places on the Atlantic coast.

C. choris Say.—Form moderately elongate, distinctly narrowed posteriorly, moderately convex, black, opaque, sparsely clothed with cinereous or golden hairs, each elytron with an angulate sub-basal band, which extends to the humeri, another transverse posteriorly yellow; antennæ slender, feebly serrate, piceous, the three basal joints pale yellowish testaceous; head feebly convex, coarsely and closely granulate; thorax very little longer than wide, sides feebly arcuately narrowed in front, behind the middle nearly straight, or with a very feeble sinuation in front of hind angles, these divergent, the carina long, extending fully three-fourths to apex; disc convex, a smooth, median, elevated line; surface rather coarsely and closely granulate, elytra widest in front of middle, thence gradually narrowed to apex, humeri obtuse; disc deeply striate, striæ punctured, intervals convex, flat near apex, roughly, not closely punctate and somewhat wrinkled; prosternum closely punctate, but smoother in front; two feeble transverse grooves in front, lobe moderately prominent, obtuse; propleuræ more densely punctate, but not opaque; metasternum and abdomen densely and moderately coarsely punctate, but somewhat shining; legs pale rufo-testaceous, the femora rarely slightly darker. Length 3—5 mm.; .12—.20 inch.

The extent of yellow color in the bands is variable so that the elytra may have more of that color than black, or *vice versa*. Specimens of the former were those seen by Say. The normal style of marking consists of a rather broad post-basal band with very sinuous edges, crossing the suture and reaching the lateral margin ending a broad extension to the humeri, behind the middle a transverse band crossing the suture where it is broadest, not reaching the side margin, with a posterior extension along the suture. The style of ornamentation seems intermediate between that of *exiguus* and *ornatus*. The elytra at tip have often a narrow pale border.

Occurs from the Middle States region westward to Indiana, and south to District of Columbia. A specimen collected by myself at Fort Tejon does not appear to differ in any respect from those found in the more eastern regions.

C. exiguus Rand.—Moderately elongate, narrowed posteriorly, convex, black, opaque; elytra ornate with yellow; antennæ slender, piceous, three basal joints fuscous, paler beneath: head flat, densely granulate, sparsely clothed with short whitish pubescence; thorax a little longer than wide ♂, or as wide as long ♀; sides feebly arcuately narrowing to the apex in front, posteriorly parallel with a slight sinuation in front of the angles, which are acute and slightly divergent, the carina long, extending fully three-fourths to apex; disc convex, closely granulate, the median line smooth and distinctly elevated; surface sparsely pubescent, more conspicuously at the hind angles; elytra widest a little behind the humeri, then gradually narrowed to apex, humeri obtuse; disc rather deeply striate, but less so near the apex, striæ punctate, intervals slightly convex at base only, rather closely submuricately punctate, but smoother at apex, sparsely cinereo-pubescent; prosternum moderately closely punctate, but smoother in front between the two transverse grooves, the lobe moderate, but obtuse; propleuræ subopaque, densely punctate; metasternum densely and rather coarsely punctate; abdomen less closely and less coarsely punctate, last segment rufescent; femora and tarsi piceous, the tibiæ pale. Length 2.5—3 mm.; .10—.12 inch.

This species has been the cause of some confusion, in which every author who has treated of our Elateridæ has had part. Described originally by Randall, in 1838, under the above name it received a second (*guttatulus*) from Mesheimer in 1845.

In 1853, Dr. LeConte, in his "Revision of the Elateridæ," placed *exiguus* and *guttatulus*, in part, in synonymy with *pulchellus*. When the Melsheimer collection became accessible to him it was observed that two species had been confounded, each represented by a single poor specimen, one representing the present species, the other it was thought might prove to be *quadripustulatus* of Europe accidentally introduced in the cabinet. This latter specimen bore the typical

label, and was therefore assumed to be the type, notwithstanding the fact that the very good description given by Melsheimer points clearly to *exiguus*. It is, therefore, without hesitation that I suppress *guttatulus*, absolutely, as a synonym, and for the species erroneously so determined by LeConte the name *Melsheimeri* is proposed, and will be found in its proper group.

Dr. Candéze simply followed in the lead of LeConte. A few months ago ("Entomological News," 1890, p. 9) I continued the same error through not having *pulchellus* for comparison. The *sabulicola* which had been sent me instead, serving alone for comparison, led me to believe that our specimens fully met the requirements noted by Fauvel ("Revue Ent." 1889, p. 142).

On comparison of *exiguus* with *pulchellus*, it will be observed that the former is more slender and convex, the elytral striæ more distinct at apex and the elytra at tip piceous without the bifid space seen in the other. The three basal joints of the antennæ are pale rufo-testaceous in *pulchellus*, piceous in *exiguus*, although paler beneath. The femora are also paler in the former species.

There seems to be a closer resemblance between *pulchellus* and *choris*. They have similarly colored antennæ and legs, but the elytra are more roughly sculptured, the striæ deeper at apex, and the bifid spot absent in *choris*.

Occurs in the New England and Middle States; Massachusetts (Blanchard) to District of Columbia (Ulke).

C. ornatus Lec.—Oblong, moderately convex, not attenuate posteriorly, black, opaque; surface finely cinereo-pubescent; elytra either ornate, as in *pulchellus*, or with merely two small spots posteriorly or entirely black; antennæ slender, feebly serrate, entirely piceous; front flat, densely granulately punctate; thorax a little variable in form, as wide as long ♀, or a little longer than wide ♂, narrowed in front, widest usually at or near the base, sides feebly arcuate in front, behind the middle nearly straight and parallel, or with a faint sinuation in some males, the angles not divergent, the carina extending nearly three-fourths to apex, disc convex, the median line finely elevated and smooth; surface opaque granulate, the granules elongate and forming short strigæ posteriorly; elytra parallel, arcuately narrowed at apical third, humeri obtuse; disc moderately deeply striate, striæ punctured, intervals flat, slightly convex at base in male, roughly punctate, more or less transversely wrinkled and rugulose, especially near the base; prosternum rather coarsely and closely punctate, especially in front, two transverse impressions anteriorly, the lobe moderately prominent, but obtuse; propleuræ closely punctate, but not opaque; metasternum densely and rather roughly punctate; abdomen densely punctate, less coarsely than the metasternum. Length 3--5 mm.; .12--.20 inch.

The males are more slender and rather more coarser than the females, the thorax a little longer than wide and with a faint sinuation in front of the hind angles, which are, however, not divergent.

There is considerable variation in color in the specimens before me, and three varieties may be indicated.

Var. *ornatus* Lec.—The elytra have two yellow spaces. The anterior is transverse, post-basal, of irregular form, widest externally, but not extending to the humerus nor margin. The posterior is behind the middle, transversely oval, not reaching the side nor the suture. The femora are piceous, the tibiæ and tarsi usually paler.

Var. *colon* Horn.—Here the elytral markings are reduced to a small round spot on each side in the position of the posterior spot of the preceding variety. The legs may be as in *ornatus*, or entirely piceous.

Var. *mœrens*.—Entirely black, without elytral markings. The legs are nearly always piceous.

Occurs in California from San Diego northward in the central valley, as well as along the coast region to Oregon (Blanchard).

C. cucullatus n. sp.—Elongate oval, rather broader in proportion to its length than usual in the genus, moderately convex, black; elytra with faint bronze lustre; thorax cinereo-pubescent near the hind angles; elytra with extremely fine and short flavo-cinereous pubescence; antennæ slender, feebly serrate, entirely piceous; head flat, closely punctate; thorax scarcely longer than wide, sides straight posteriorly, gradually arcuately narrowed from middle to apex, hind angles not divergent, the carina extending in front of middle, apical margin arcuate and prolonged over the head, deeply sinuate near the front angles; disc convex, without smooth median line; surface very coarsely granulate, but somewhat smoother on the declivity and near the hind angles; elytra with sides parallel, arcuately narrowed at apical third; apex obtuse, humeri obtuse; disc moderately convex, striate, striæ punctate, intervals slightly convex in their entire extent and closely punctulate; prosternum granulate in front, rather finely punctate posteriorly, a faint transverse impression in front, the lobe short and obtuse; propleuræ more finely and closely punctate than the sternum; metasternum a little more coarsely punctate; abdomen rather more finely and densely; legs piceous, the tibiæ and tarsi paler. Length 3.5 mm.; .14 inch.

This species is easily known by the form of the apical border of the thorax of which the middle forms a short lobe partly concealing the head from above. On each side of this lobe is a rather deep sinuation causing the front angles to be more acute and prominent than usual.

Specimens have been examined from the Indian Territory; Columbus, Texas (Schwarz), Utah (Ulke). A specimen has been seen labeled Ohio, but the locality seems doubtful.

Group MELSHEIMERI.

Prosternal sutures arcuate and convergent posteriorly. Maxillary palpi not prominent, the last joint elongate triangular, the apex rounded. Thorax asperate, or subgranulate in front, becoming gradually quite smooth posteriorly, the base without incisures. Elytra striate; tibiæ slender, spurs small; surface usually shining, elytra often ornate. Body winged.

A group of small species standing naturally between the *choris* and *perplexus* series. Its essential character is in the sculpture of the thorax, the anterior portion being quite roughly or more densely sculptured, and the basal portion quite smooth. Some curious sexual peculiarities have been observed in some of them, of rare occurrence in Elateridæ, but by no means rare in Eucnemidæ, consisting of tubercles or pubescent spots on the first two ventral segments.

The elements composing the group are by no means homogeneous, and might be again divided as the last three species have not that very marked difference in sculpture of the thorax so well shown in the others. As a whole, the group is known from the *striatulus* series by its more convex form and the evident inequality of the thoracic punctuation; from the *choris* series by the opaque, granular thorax of these; the *perplexus* series has usually a sparsely punctate thorax, and in any event the punctures are equal and equally disposed.

The following species are known to occur in our fauna:

Prosternal sutures widely double, smooth and grooved in nearly their entire length; thorax simply emarginate at apex when seen from above.

Antennæ and legs pale; anterior tibiæ of male not broader than in female, the first ventral ♂ with a flattened space at middle enclosing a tubercle ..... **Melsheimeri.**

Antennæ piceous, tip of first and the second and third joints paler; legs pale, femora darker; anterior tibiæ of male nearly twice as broad as in the female, the first ventral ♂ scarcely flattened, but with an oval hairy spot ..... *quadriguttatus.*

Antennæ piceous, paler at base; legs pale, femora piceous; anterior tibiæ of male not broader, the first and second ventrals of male with a tubercle near the posterior border ..... **caurinus.**

Antennæ as in *quadriguttatus*, legs similar; anterior tibiæ of male broader than in female, but less marked; first ventral of male gibbous between the coxæ, rather suddenly declivous posteriorly and fringed with longer hair. ..... *dermestoides.*

Prosternal sutures very narrowly double, not grooved.

Carina of the hind angles of thorax extending to or beyond the middle of the thorax.

Form subdepressed; thorax distinctly rugulose in front; posterior coxal plates obliterated externally.

Thorax simply emarginate in front; no ventral sexual characters in either sex ..... **dispersus.**

Thorax sinuate each side at apex, the middle somewhat elevated and prolonged over the head; second ventral of ♀ with oval pubescent spot ..... **gradarius.**

Form convex; thorax simply a little more coarsely punctate in front; posterior coxal plates not obliterated externally; sides of thorax sinuate in front of hind angles ..... **tumescens.**

Carina of hind angles of thorax very short, not extending beyond the angles.

Piceous, faintly bronzed; sides of thorax sinuate in front of hind angles, these distinctly divergent ..... **musculus.**

Brownish opaque; sides of thorax straight posteriorly, the hind angles not divergent ..... **dubius.**

It will be observed that two European species are introduced in the table, the names in italics. These have been the cause of much of the trouble experienced in identifying our species. On several occasions specimens have come to me labeled *dermestoides* with *quadriguttatus* as a variety. Whether that is the view generally held in Europe is hardly my province to investigate, but there is no question in my mind that they are two well defined species easily separated by the sexual characters of the male. I find no mention made of the latter in any literature examined, they have even escaped the acute observation of C. G. Thomson.

C. Melsheimeri n. sp.—Oblong, moderately convex, piceous black shining, sparsely finely pubescent, each elytron with a humeral and subapical yellow spot; antennæ slender, feebly serrate, joints all longer than wide, ferruginous, joints 2-3 paler, basal joint darker; head slightly convex, punctate, somewhat asperate; thorax wider than long, narrowed in front, sides arcuate, straight for a short distance near base, hind angles broad, but acute at tip, the carina extending finely three-fourths to apex; disc convex, shining, asperately punctate in front, gradually evanescent behind and quite smooth near the base, median line distinctly smoother in front; elytra as wide at base as the thorax, humeri obtuse, sides nearly parallel, arcuately narrowed at apical third, apices obtuse, disc striate, striæ extremely finely punctate, intervals slightly convex, sparsely minutely punctulate, the humeral spot small, rhomboidal, the subapical round; prosternum sparsely punctate, more coarsely and closely in front, the lobe moderately prominent, rather obtuse, prosternal sutures widely double, smooth, grooved nearly their entire length, propleuræ feebly shining, punctures fine and close; metasternum moderately closely punctate, the last segment more densely and opaque; legs pale rufo-testaceous, the femora slightly darker. Length 2—2.25 mm.; .08—.09 inch.

The first ventral segment of the male has a flattened space at middle, in the centre of which is a slightly elevated broad tubercle.

The female has simple ventral segments, the antennæ a little shorter, and the joints, consequently, relatively broader.

Superficially this species closely resembles *quadriguttatus* (*tetragraphus*), but the thorax is smoother, *i. e.*, the roughness does not extend so far posteriorly, and the median smooth line is shorter.

Thomsom states (Skand. Col. vi, p. 116) that in the male of *tetragraphus* the anterior tibiæ are inwardly dilated near the apex. No such structure is seen in our species.

This species is the form for which Dr. LeConte retained the Melsheimer name *guttatulus*, but I have elsewhere shown that the description applies accurately to that described previously as *exiguus* Rand.

Occurs in the District of Columbia (Ulke); northern Illinois.

C. caurinus n. sp.—Oblong, moderately convex, piceous, slightly shining, surface finely cinereo-pubescent, each elytron with a small yellow spot at humerus, a second subapical, both indistinct; antennæ slender, feebly serrate, entirely piceous; head convex, a slight median impression posteriorly, surface opaque, finely asperate; thorax a little broader than long, narrowed in front, apex emarginate, sides parallel posteriorly, then gradually arcuately narrowed to the front, hind angles stout but acute, the carina extended two-thirds to apex, disc convex, median line somewhat smooth in front, surface asperately punctate in front, finely and closely posteriorly; elytra as wide as the thorax, humeri obtuse, sides scarcely arcuate, apical third arcuately narrowed, apex obtuse, disc striate, striæ faintly punctured at the sides, intervals feebly convex, minutely and moderately closely punctate; prosternum finely not closely punctulate; a distinct transverse impression, anterior to which the punctuation is rather coarse and rugose; lobe prominent, obtusely rounded in front, sutures widely double, smooth and grooved, propleuræ opaque, densely and very minutely punctulate; metasternum and abdomen densely finely punctulate; femora piceous, tibiæ and tarsi testaceous. Length 2—2.5 mm.; .08—.09 inch.

The males have an oval flattened space in the middle of the first ventral segment enclosing a small tubercle, a second tubercle near the margin of the second segment. Females are not known to me.

In a superficial comparison this species might be supposed to be merely a *Melsheimeri* with spots less distinctly marked, but here the antennæ are quite black and the male sexual characters different.

Occurs in the State of Washington.

C. dispersus n. sp.—Oblong, moderately convex, piceous black, feebly shining, sparsely and finely cinereo-pubescent, each elytron with a faint humeral and subapical yellow spot, or without any; antennæ slender, feebly serrate, entirely piceous, or with joints 2-3 pale; head convex, sparsely asperately punctate; thorax a little wider than long, apex emarginate, sides parallel for a short distance posteriorly, thence arcuately narrowed to the front, the hind angles

broad, but acute; the carina extending two-thirds to apex, disc convex, median line smooth in front, surface asperately punctate in front, sparsely punctate posteriorly; elytra as wide at base as the thorax, but evidently narrowed from the obtuse humeri, disc striate, striæ finely punctate, intervals slightly convex, finely moderately closely punctulate; prosternum not closely punctate, a feeble transverse impression in front, lobe obtusely prominent, coarsely and closely punctate, the sutures very narrowly double, but not at all excavate, propleuræ less shining, very minutely and densely punctulate; metasternum and abdomen densely and finely punctulate; legs testaceous, the femora darker. Length 2.25 mm.; .09 inch.

The two specimens before me, which seem to be male and female, exhibit no ventral sexual characters. One ♂ from Washington has entirely piceous antennæ, a very faint humeral spot, the subapical more distinct; that from Nevada has no elytral spots, and the second and third joints of the antennæ pale. A third from Nova Scotia, probably representing a distinct species, has the elytral spots well marked as in *Melsheimeri*, and the three basal joints of the antennæ pale. In the absence of a male it is for the present placed with this species.

Occurs in Nevada, Washington (and Nova Scotia?).

C. gradarius n. sp.—Oblong, feebly convex, piceous-black, subopaque, faintly bronzed, surface finely cinereo-pubescent, more evidently in the depression near the hind angles; antennæ black, slender, feebly serrate; front slightly impressed, rather coarsely and roughly punctured; thorax very little wider than long, narrowed in front, sides posteriorly straight, in front gradually arcuate to apex, apical border sinuate, slightly elevated at middle and prolonged over the head, hind angles broad, but acute, the carina extending two-thirds to apex, disc convex, asperately punctate in front, more finely and smoother posteriorly; elytra as wide at base as the thorax, humeri obtuse, sides feebly arcuate, apex obtusely rounded, disc striate, striæ punctulate, intervals feebly convex, punctulate; prosternum sparsely punctate, shining, a feeble transverse impression in front, lobe not prominent, obtusely rounded, coarsely punctate, prosternal sutures simple, without trace of excavation, propleuræ subopaque, densely finely punctulate; metasternum and abdomen closely finely punctate; legs rufo-testaceous, femora darker. Length 2 mm.; .08 inch.

The male shows no sexual characters on the ventral segments, the female, however, has a finely pubescent, oval spot at the middle of the second segment.

This species is the one I had thought identical with *dermestoides*, but a closer examination shows it to be our equivalent, on this continent, of *curtus* of Europe. The sinuation of the apical border of the thorax, although sufficiently well marked in comparison with the others of the group, is less distinct than in *cucullatus*. The denser silken pubescence of the hind angles of the thorax is rather a con-

spicuous feature of this species. The two specimens before me are precisely alike above and show no traces of pale spots.

Collected by Mr. D. W. Coquillett at Los Angeles.

C. tumescens Lec.—Oblong, convex, facies robust, piceous-black, with slight æneous surface lustre, sparsely cinereo-pubescent; antennæ either entirely piceous, or with joints 2-3 paler; joints subtriangular from 4-10; head convex, closely punctate; thorax as wide as long, narrowed in front, sides rather strongly arcuate, sinuate in front of the hind angles, which are acute, slightly divergent, with the carina extending nearly half to apex, disc convex, the median line smooth, surface moderately closely punctate, a little roughened near the apex only, gradually more finely posteriorly; elytra oval, widest a little behind the middle, humeri obtuse, disc convex, striate, striæ punctate, intervals slightly convex near the base, sparsely punctate, more coarsely in front, the lobe obtuse, propleuræ more closely punctate; metasternum more coarsely punctate; abdomen more finely and closely punctate; legs rufo-testaceous, the femora piceous. Length 3—4 mm.; .12—.16 inch.

The prosternal sutures, while doubled as usual in the group, are very narrow, although in the female they are distinctly wider than in the male.

The form of this species is quite that of a diminutive Cardiophorus. The sculpture of the thorax does not have that marked roughness seen in the preceding species. The posterior coxal plates are not obliterated externally.

Occurs on the north shore of Lake Superior (LeConte), upper Canada (Pettit) and New Mexico (Fuller); White Mountains (Blanchard).

C. musculus Esch.—Oblong, convex, facies robust, black, shining, surface distinctly æneous, sparsely pubescent; antennæ piceous, slightly serrate; head convex, closely, subasperately punctate; thorax broader than long, very little narrowed in front, sides strongly arcuate, sinuate near the hind angles, which are acute, slightly divergent, and with a very short carina, disc convex, median line smooth, surface closely and slightly asperate in front, gradually more finely and sparsely behind; elytra oval, widest at middle, humeri rounded, disc convex, striate, less deeply at sides, striæ punctate, intervals slightly convex near the base, moderately closely, but finely submuricately punctate, forming transverse ridges near the base; prosternum sparsely punctate, a distinct transverse groove in front, the lobe rather obtuse, propleuræ similarly punctate; metasternum a little more coarsely punctate; abdomen punctate similarly to the propleuræ, but more densely; legs piceous, the tibiæ and tarsi paler. Length 2.5—3 mm.; .10—.12 inch.

The prosternal sutures are not at all doubled in this species. The carina of the hind angles of the thorax is here very short and inconspicuous, and might readily be passed unobserved. The posterior

coxal plates are obliterated externally, the posterior edge being confluent with the anterior.

Occurs in Alaska.

C. dubius Horn.—Oblong, moderately convex, fuscous, feebly shining, sparsely pubescent, hind angles of thorax paler; antennæ slender, scarcely serrate, fuscous, the three basal joints paler; head slightly flat, closely subasperately punctate; thorax a little wider than long, narrowed in front, sides parallel behind, arcuate anteriorly, the hind angles nearly rectangular, the carina moderate in length, disc convex, the median line smoother, surface closely punctate and somewhat scabrous in front, gradually more smooth posteriorly; elytra oblong, sides parallel, arcuate at apical third, humeri obtuse, disc striate, a little less at the sides, striæ relatively coarsely punctate, intervals flat, finely and moderately closely punctate; prosternum sparsely punctate, transversely impressed in front, the lobe short and obtuse, propleuræ finely and indistinctly punctate; metasternum more coarsely punctate; abdomen very finely and moderately closely punctate; legs pale. Length 2—2.5 mm.; .08—.10 inch.

The under side of body is notably paler than the upper, especially on the sternal members and the epipleuræ. The posterior coxal plates are obliterated externally.

This species has the same general outline of body as in the *Melsheimeri* series, but is more convex.

Occurs in Nebraska and Dakota (Ulke).

Group **PERPLEXUS.**

Prosternal sutures arcuate and rather strongly convergent posteriorly. Maxillary palpi moderately prominent, the last joint elongate triangular. Elytra moderately deeply striate, ornate with yellowish spaces. Form rather slender, convex. Thorax simply punctate, not rugose, the median line not elevated nor smooth, without basal incisures. Legs slender, tibial spurs very small.

Among the species with arcuate prosternal sutures, those of this group are known by the striate and ornate elytra, with comparatively smooth thorax. The only exotic species known to me as belonging here is *quadripustulatus* Fab.

The species are separated as follows:

Thorax distinctly narrowed in front, at base as wide, or wider than at middle.
  Antennæ and legs entirely piceous ..... **gentilis.**
Thorax coarctate at base and apex nearly equally, widest at middle, hind angles slender, slightly divergent. Legs and three basal joints of the antennæ yellowish testaceous.
  Elytral humeri obtuse, body with well developed wings, striæ scarcely more punctate than the intervals; each elytron with two yellow spaces, humeral and subapical ..... **æstivus.**
  Elytral humeri rounded, body very feebly winged, striæ more coarsely punctate than the intervals.
    Each elytron with two yellow spots; thorax wider than long. *quadripustulatus.*
    Each elytron with a humeral spot only; thorax distinctly longer than wide ..... **perplexus.**

The European species is introduced in the table for the comparison of its characters with the two in our fauna most closely allied to it.

C. gentilis Lec.—Moderately convex, piceous, feebly shining, clothed with fine flavo-cinereous silken pubescence, each elytron with an arcuate humeral oblique yellow stripe and a short transverse one behind the middle; antennæ slender, piceous, feebly serrate, joints all longer than wide; head vaguely longitudinally impressed, finely and moderately punctate, slightly scabrous; thorax as broad as long, narrowed in front, sides anteriorly feebly arcuate, nearly straight at basal fourth, the hind angles stout not divergent, tipped with yellow, the carina extending nearly to middle, but very feeble in front, disc moderately closely finely punctate, the median smooth line very feeble, the pubescence irregularly arranged, giving a holosericeous appearance; elytra as wide at base as the thorax, humeri obtusely rounded, disc feebly arcuate, gradually narrowed from base, disc deeply striate, striæ closely punctate, intervals convex, densely punctulate, somewhat scabrous near the base; prosternum sparsely punctate, a little more coarsely in front, with two vague transverse impressions, the lobe obtusely rounded with narrowly beaded margin, propleuræ a little more closely punctate than the sternum, shining; metasternum and abdomen a little more coarsely punctate than the prosternum, the apical segment somewhat roughened. Length 3—4 mm.; .12—.16 inch.

In the male the form is more slender, and, contrary to what has been noticed elsewhere in Elateridæ, the elytral intervals are less convex. The hind angles are also very slightly divergent. The frontal impression may be vaguely triangular.

The yellow humeral lunule of the elytra is, in form, very like the same mark in *Cicindela*. The legs are piceous, but sometimes the tibiæ and tarsi are paler.

From either of the species of this group this differs in having the thorax broadest at base, the antennæ and legs piceous.

Occurs in Nebraska (Ulke), Wyoming and Washington (Morrison)

C. æstivus Horn.—Oblong, moderately elongate and convex, piceous, basal joints of antennæ, hind angles of thorax, legs, a humeral and subapical spot on each elytron yellowish testaceous, surface moderately shining, sparsely pubescent; antennæ feebly serrate, joints slender; front rather flat, head vaguely punctate and slightly rugulose; thorax not longer than wide, slightly narrowed in front, widest slightly in front of middle, sides arcuate, distinctly sinuate in front of the hind angles, which are slender, acute and distinctly divergent, the carina not prolonged, disc moderately convex, not closely punctate, the median smooth line feebly evident posteriorly; elytra as wide at base as the thorax, humeri obtuse, sides feebly arcuate, disc striate, striæ punctate, intervals slightly convex, not closely punctulate; prosternum sparsely finely punctate, vaguely transversely impressed, the lobe short and truncate, propleuræ more coarsely and punctate than the prosternum at middle, shining; mesosternum punctured similarly to the propleuræ, the abdomen a little more finely. Length 4—5 mm.; .16—.20 inch.

In this species the elytra are colored very like *gentilis*. The more striking differences between it and the others of the group are sufficiently detailed in the table.

Occurs in Missouri; collected by Dr. S. V. Summers, Ohio (Blanchard).

C. perplexus Horn.--Moderately elongate and convex, piceous-black, shining, sparsely pubescent, three basal joints of the antennæ, legs and a humeral spot reddish yellow; antennæ slender, feebly serrate; front rather flat, sparsely punctate; thorax distinctly longer than wide, nearly equally narrowed at base and apex, widest a little in front of middle, sides arcuate, distinctly sinuate in front of the hind angles, which are small, acute and distinctly divergent, the carina distinct, disc convex, sparsely but equally punctate, median smooth line distinct; elytra elongate oval, widest at middle, humeri rounded, the disc striate, striæ rather deep and coarsely punctate, the intervals convex, shining and very sparsely punctulate; prosternum transversely impressed in front, the lobe short and obtuse, surface sparsely finely punctate at middle, more distinctly at the sides, propleuræ shining, a little more coarsely and less closely punctate than the sternum; metasternum a little more coarsely and closely punctate; abdomen more finely than this. Length 2.75—3.5 mm.; .11--.14 inch.

This species resembles that variety of *quadripustulatus* in which the humeral spot alone is present, but it differs in having the thorax very obviously longer than wide, the elytral striæ more coarsely punctate, and the intervals smoother. The hind angles of the thorax are sometimes tipped with yellow, but this is by no means frequent. The body is very feebly winged.

Occurs in the District of Columbia, where it has been collected abundantly, at times, by Mr. Ulke.

Group PECTORALIS.

Prosternal sutures arcuate, convergent posteriorly, nearly twice as widely separated at the apical angles as at the coxæ. Maxillary palpi not prominent, the last joint triangularly oval. Legs slender, the tibial spurs minute. Form at least moderately convex, body winged. Elytra either not at all striate, or those near the suture alone indicated faintly. Thorax without basal incisures, a smooth median line variably present.

This group is equivalent to the second division, AA, indicated in the Monograph of Candéze. Those occurring in our fauna separate very naturally from the exotic forms by having the carina of the hind angles of the thorax short, while in those the carina is prolonged nearly or quite to the anterior angles.

The species known to inhabit our fauna may be separated by the following table.

Elytra faintly striate at middle, the striæ distinctly impressed in the basal declivity; antennæ and legs piceous; surface shining, faintly æneous. **restrictulus.**

Elytra absolutely without striæ; antennæ and legs pale.

Surface moderately shining, the punctuation extremely indistinct; each elytron with an oblique yellow band at middle, not reaching the suture and an oval apical spot. **obliquatulus.**

Surface subopaque, the punctuation very distinct, especially on the thorax; color very variable, from yellowish testaceous to piceous, with intermediate maculate forms **pectoralis.**

The species of this group are small, some of the forms of *pectoralis* being the smallest Elaterides in our fauna.

C. restrictulus Mann.—Oblong, moderately elongate and convex, piceous, shining, very sparsely pubescent; antennæ piceous, longer than the head and thorax, slender feebly serrate, joints all longer than wide; head slightly concave, not closely punctate; thorax slightly longer than wide, widest at middle, slightly narrowed in front, sides arcuate, sinuate in front of the hind angles, which are slender, acute, divergent and carinate, disc convex, finely not closely punctate, the median line faintly smoother; elytra oblong oval, widest at middle, humeri rounded, disc moderately convex, very faintly striate near the middle, the striæ impressed in the basal declivity, at the sides entirely obliterated, surface moderately closely punctate, except near the apex; prosternal lobe short, mouth exposed, the sternum moderately convex, sparsely punctate at middle, more closely near the sides, propleuræ shining, moderately closely punctate; metasternum and abdomen similarly punctate, not closely nor coarsely; legs piceous, the tibiæ and tarsi sometimes paler. Length 3.5 mm.; .14 inch.

In the male the last ventral segment is bisinuately truncate with a median tooth, the same segment of the female is similarly truncate, but in a less pronounced manner.

This species is described in the Monograph of Candéze as *musculus* Mann., but a comparison of the original descriptions will show that Dr. Candéze had *restrictulus* and not the other before him. Besides, a type of *musculus* is in the LeConte collection from Mannerheim. The measurement given by Candéze is also incorrect for either species, while its position among the striate species is certainly misleading. The form of the last ventral segment is not found in any other species in our fauna. In habitus the species resembles *Oedostethus femoralis*, but in the latter the striæ are more distinctly impressed, although obliterated at the side, and the claws have the basal half dilated.

Occurs in Alaska (Mannerheim, Ulke) and in the White Mountain region of New Hampshire (Blanchard).

C. obliquatulus Mels.—Oblong, moderately convex, piceous, thorax somewhat paler in color, very sparsely pubescent, antennæ and legs testaceous; antennæ slender, feebly serrate, joints all longer than wide; head sparsely punctate; thorax a little wider than long, slightly narrowed in front, widest at middle, sides regularly arcuate, sinuate in front of the hind angles, which are small, acute, and very slightly divergent, the carina fine, and, when seen from above, directed nearly straight to the front, disc moderately convex, sparsely equally punctate, the median smooth line very faint; elytra slightly wider than the thorax, humeri very little oblique, sides regularly arcuate, widest at middle, disc entirely without striæ, more sparsely and finely punctured than the thorax, color piceous, on each elytron an oblique yellowish band reaching the margin, but not the suture, an oval apical spot of variable size also yellow; prosternum sparsely punctate, and with two transverse impressions, the lobe moderately prominent, but obtusely rounded in front, the border finely beaded, propleuræ shining, more sparsely and finely punctate than the sternum; metasternum minutely and indistinctly punctate, abdomen more densely and coarsely. Length 2.25—2.75 mm.; .09—.11 inch.

Usually the underside of the body is much paler than the upper, especially in the prothorax and the elytral epipleuræ. The color and markings seem to be very constant, and vary but little beyond that caused by varying degrees of maturity.

The males have a small, densely punctured space at the middle of the prosternum, usually more pubescent, but never as distinct as in *pectoralis*.

Distributed from Canada and the New England States southward to Virginia and westward to Iowa.

C. pectoralis Say.—Oblong, feebly convex, subopaque, sparsely finely pubescent, color variable from entirely yellow to entirely piceous; antennæ slender, feebly serrate, joints all longer than wide, yellowish testaceous; head moderately closely punctate, front flat; thorax usually as wide as long, sometimes slightly longer, slightly narrowed in front, widest at middle, sides arcuate, scarcely sinuate in front of the hind angles, which are small, acute, but not divergent, the carina, when viewed from above, turned externally, disc very distinctly and rather closely punctate, the median smooth line usually evident; elytra slightly wider than the thorax, humeri slightly oblique, sides arcuate, disc without striæ, surface less distinctly punctate than the thorax; prosternum moderately closely punctate, transverse impression not well marked, the lobe moderately prominent, subtruncate in front, propleuræ punctate similarly to the sternum; metasternum punctate similarly to the prosternum, the abdomen much more finely and densely. Length 1.5—3 mm.; .06—.12 inch.

The males of this species have a small, but densely punctured spot at the middle of prosternum from which arises a bunch of longer pubescence. The pubescence is often absent, except in well preserved specimens.

This species varies greatly in color, and has been given three names in consequence. These varieties may be described as follows:

Var. *pectoralis* Say.—Entirely yellowish testaceous above and beneath. Specimens often occur with a transverse fuscous fascia behind the middle of the elytra, which extends narrowly along the suture to the apex.

This form occurs from Massachusetts to California and Texas.

Var. *futilis* Lec.—This does not differ from the preceding variety, except in its smaller size and with apparently a slightly more rugose thoracic sculpture. A subvariety occurs in Arizona entirely piceous. These latter are the smallest specimens seen (.06 inch).

Occurs at San Diego and Owen's Valley in California, and also in Arizona.

Var. *inops* Lec.—Piceous, elytra with an indefinite humeral yellow spot, a short transverse band at middle adjacent to the lateral margin, these two sometimes united along the margin, a subapical yellow space. Specimens often occur with a median discal space of the thorax yellowish.

Occurs in California and Washington.

Var. ————.—Entirely piceous, and occasionally with the legs darker than normal.

This is known to me from the extreme northwest, Washington, although one from Iowa has merely slightly paler humeri.

From the localities given this seems to be the most widely distributed of our species.

Synonymy and Bibliography.

CRYPTOHYPNUS Esch.

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C. **littoralis** Esch., Thon. Arch. ii, 1, p. 34; Cand., Mon. iii, p. 75, pl. 2, fig. 4.

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C. **grandicollis** Lec., New Species, 1863, p. 83.
C. **hyperboreus** Gyll., Ins. Suec., iv, p. 350; Cand., Mon. iii, p. 60.
C. **Sanborni** Horn, Trans. Am. Ent. Soc. 1871, p. 303.
C. **barbatus** Sahlb., Vega Expeditionens, Stockholm 1885, p. 30 (separat-abdrücke).

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C. **abbreviatus** Say, Journ. Acad. iii, 1823, p. 173; edit. Lec. ii, p. 112.
silaceipes Germ., Zeitschr. v, p. 139; Cand., Mon. iii, p. 63.
lacustris Lec., Trans. Amer. Philos. Soc. x, 1853, p. 486.
C. **impressicollis** Mann., Bull. Mosc. 1853, iii, p. 225.

C. nocturnus Esch., Thon. Archiv. ii, 1, p. 33; Cand., Mon. iii, p. 69.
v. *lucidulus* Mann., Bull. Mosc. 1853, iii, p. 227.
vestitus Mann., Bull. Mosc. 1853, iii, p. 227.
fallax Mann., Bull. Mosc. 1853, iii, p. 226.
v. *bicolor* Esch., Thon. Archiv. ii, 1, 33; Cand. Mon. iii, p. 65.
limbatus Mann., Bull. Mosc. 1852, ii, p. 327; Cand., Man. iii, p. 66.
scarificatus Mann., Bull. Mosc. 1853, iii, p. 226.
picescens Lec., Trans. Amer. Philos. Soc. x, 1853, p. 486.

C. squalidus Lec., Trans. Amer. Philos. Soc. x, 1853, p. 487.
C. funebris Cand., Mon. iii, p 62, pl. 2, fig. 2.
C. planatus Lec., New Species, 1863, p. 84.

C. striatulus Lec., Trans. Amer. Philos. Soc. x, 1853, p. 488.

C. delumbis n. sp.
C. choris Say, Trans. Amer. Philos. Soc. vi, 1836, p. 172; edit. Lec. ii, p. 608; Cand., Mon. iii, p. 81.
C. exiguus Rand., Bost. Journ. ii, p. 35.
guttatulus Mels., Proc. Acad. ii, p. 214 (nec Lec.).
pulchellus ‡ Lec., Trans. Amer. Philos. Soc. 1853, x, p. 487.
C. ornatus Lec., Trans. Amer. Philos. Soc. x, 1853, p. 487; Cand., Mon. iii, p. 80.
v. *colon* Horn, Trans. Amer. Ent. Soc. 1871, p. 305.
C. cucullatus n. sp.

C. Melsheimeri n. sp.
guttatulus ‡ Lec., Trans. Amer. Philos. Soc. x, 1853, p. 487.
C. caurinus n. sp.
C. dispersus n. sp.
C. gradarius n. sp.
C. tumescens Lec., Trans. Amer. Philos. Soc. x, 1853, p. 486.
C. musculus Esch., Entomog. 1, 1822, p. 72 (nec Cand.).
C. dubius Horn, Trans. Am. Ent. Soc. 1871, p. 305.

C. gentilis Lec., Proc. Acad. 1866, p. 389.
C. aestivus Horn, Trans. Amer. Ent. Soc. 1871, p. 304.
C. perplexus Horn, Trans. Am. Ent. Soc. 1871, p. 304.
quadripustulatus ‡ Lec., Proc. Acad. 1866, p. 389.

C. restrictulus Mann., Bull. Mosc. 1853, iii, p. 228.
musculus ‡ Cand., Mon. iii, p. 64.
C. obliquatulus Mels., Proc. Acad. ii, p. 214; Lec., Trans. Amer. Philos. Soc. x, 1853, p. 488; Cand., Mon. iii, p. 90, pl. 2, fig. 7.
C. pectoralis Say, Trans. Amer. Philos. Soc. vi, p. 173; edit. Lec. ii, p. 608; Cand., Mon. iii, p. 89.
v. *futilis* Lec., Trans. Amer. Philos. Soc. x, 1853, p. 488; Cand., Mon. iii, p. 91.
v. *inops* Lec., Trans. Amer. Philos. Soc. x, 1853, p. 488; Cand., Mon. iii, p. 91.

APPENDIX.

ŒDOSTETHUS Lec.

This genus does not seem to be generally known to collectors, so that but few specimens have ever been sent me for determination. It differs from Cryptohypnus in having the claws abruptly dilated at basal half as shown in fig. 8, pl. 1. The prosternal sutures are arcuate, but in a less degree than in the species of Cryptohypnus with sutures.

Oe. femoralis Lec., Revis. Elat. p. 489.

This is the only species known. It greatly resembles *C. restrictulus*, having the striæ of elytra feebly distinct on the disc and obliterated at the sides, the color and form being also quite similar. The maxillary palpi are rather slender and similar to *restrictulus*.

It is known to me from Canada, western Pennsylvania and Colorado.

ANTHRACOPTERYX n. g.

Frontal margin not elevated, confluent with the edge of the clypeus. Antennæ a little longer than the head and thorax, joints 3–10 feebly serrate, nearly equal in length, eleventh longer, second shorter, first joint stout, nearly as long as the next two. Maxillary palpi long, the last joint (of both palpi) cultriform, longer than the two preceding joints together. Thoracic margin acute, when seen laterally nearly straight, terminating opposite the middle of the eye; scutellum oval, slightly transverse. Elytra oblong, humeri obliquely rounded, body apterous. Prosternal lobe rather short, the mouth exposed beneath, the sutures straight, slightly convergent posteriorly, tip of prosternum acute, flexed upward toward the body. Posterior coxal plates abruptly dilated at inner third. Tarsi as long as the tibiæ, the first four joints decreasing gradually in length and not lobed, claws simple.

The above description briefly defines a form which it is by no means easy to place. From the method of classification adopted by Dr. Candéze, which assumes the form of the front as the character of greatest primary moment, the genus should be referred to the division Corymbitites and to the group Dimites. From Dr. Candéze I have received the following note: "For me there remains no doubt, after a mature examination, that it can be placed in the Dimites, where it will form a new genus related to Diadysis (of Australia) and Asorno (of Patagonia) which I will hereafter place in the Dimites."

In a sentence immediately preceding he writes: "Its head is the head of a Corymbitite, but the coxæ!" Here is the point at issue. The form of the posterior coxal plates, whether abruptly or gradually dilated internally seems to me a character of greater stability, and therefore more reliable as a character than the form of the head. Therefore, I must at this time differ from that learned entomologist, and place it among the Cryptohypnites.

In the latter group we find species with the frontal margin scarcely distinct from the clypeal and the labial palpi exhibiting a tendency to elongate, especially in the last joint.

From Cryptohypnus the genus may be said to differ by the form of the long maxillary palpi terminated by a cultriform joint.

Science owes to Mr. T. D. A. Cockerell the discovery of the species on which the genus is founded, and both the generic and specific names are due to his suggestion. Had it not been for the necessity of quoting the letter of Dr. Candéze in order to explain why I differed from him, I would have preferred to have elaborated the notes sent me by Mr. Cockerell to publish them under his name.

A. hiemalis n. sp.—Oblong, parallel, moderately convex, piceous, slightly shining, sparsely pubescent; antennæ a little longer than the head and thorax, piceous, feebly serrate, joints all longer than wide; head sparsely punctate, front rather flat, the frontal ridge not continuous across the front; thorax longer than wide, apex feebly emarginate, widest one-third from apex, sides moderately arcuate, slightly convergent posteriorly, feebly sinuate before the hind angles, which are acute, not long nor divergent, distinctly carinate, disc moderately convex, median line feebly impressed posteriorly, without basal incisures, surface equally punctate, moderately coarsely, but not closely; elytra not wider than the thorax in front, oblong oval, humeri very oblique, disc striate, striæ punctured, intervals flat, irregularly biseriately punctate and somewhat wrinkled, especially at base; prosternal lobe not prominent, irregularly arcuate in front, the edge not beaded, surface coarsely not closely punctate, apical mucro very oblique, propleuræ less coarsely and less closely punctate; metasternum and abdomen still less closely punctate and more shining, the last segment more coarsely and closely; legs piceous, tarsi usually paler. Length 6.5 mm.; .26 inch. Pl. 1, figs. 6, 7.

Collected by Mr. T. D. A. Cockerell at West Cliffe, Custer County, Colorado, at an elevation of 7000 feet and over.

NEW SPECIES AND MISCELLANEOUS NOTES.

BY GEO. H. HORN, M. D.

The few new species described below are mostly of curious forms, or of groups not previously represented in our fauna. Others have interest in their relationship with Mexican forms, while several are indicated as inhabitants of our fauna known previously from more tropical regions to the south.

A few synonyms have been given which need no special comment.

PTEROSTICHUS Bon.

P. (*Hyperphes*) **inanis** n. sp.

This name is suggested for a species closely allied to *angustus*, but of rather less parallel form and somewhat larger size, and always of darker color. The head is broader, and more distinctly narrowed behind the eyes, which are larger and more convex. The thorax is more distinctly narrowed behind from being somewhat more arcuate in front. The basal impressions are deeper and longer, while the basal marginal line is very short (in *angustus* extending across the entire base). The elytra are more depressed, the sides more arcuate. The under side does not present any essential differences. Length 10–12 mm.; .40–.48 inch.

In the male the hind trochanter is always two-thirds the length of the femur, and sometimes slightly longer than that, the apex very acute, while in *angustus* the same member is rarely more than half the length of the femur and obtuse at tip.

The essential differences from *angustus* are—larger size and less parallel form, prothoracic impressions deeper and longer, basal marginal line here almost absent, except at hind angles, and finally the form of the male hind trochanters.

Occurs in Washington, Nevada, and as far south as Placer County, California.

P. (*Hyperphes*) **caligans** n. sp.

Very like *angustus*, but still more slender and elongate. Castaneous, shining, elytra very finely alutaceous; head relatively larger, frontal impressions moderately deep, optic prominences normally large, the eyes very small; thorax longer than wide, narrower at base, sides very feebly arcuate, slightly sinuate in front of the hind angles, which are sharply rectangular, median impression moderately deep, extending to base and nearly to apex, basal impressions single,

moderately deep, arcuate, basal marginal line entirely absent; elytra oblong, nearly parallel, humeri slightly dentate, surface moderately deeply striate, striæ obsoletely punctate, intervals very slightly convex; beneath similar in color, abdomen finely alutaceous, indistinctly punctate at sides in front. Length 10–11 mm.; .40–.44 inch.

In the male the hind trochanter is about half as long as the femur and obtuse at tip.

Two specimens have been examined, taken by Mr. L. E. Ricksecker at Sylvania, Cal.

This species is evidently closely related to *longissimus* Bates (Biol. Cent. Am. i, p. 81, pl. iv, fig. 6), although that species is said to have non-dentate humeri. Direct comparison will be necessary to indicate the real differences, as it can hardly be supposed that an almost blind species from middle California is identical with one from Guatemala.

The two species above described constitute, with *angustus*, a small group of Pterostichus, characterized especially by a very narrow, almost parallel form. All have small eyes, although they vary in size in the three species. Of the three *inanis* has the largest eyes, and *caligans* the smallest.

The characters separating them may be tabulated in the following manner:

Thorax with two distinct linear basal impressions, the basal marginal line entire; hind trochanters of ♂ longer than half the femur and very acute at tip; scutellar stria rarely well marked, often absent ..... **inanis.**

Thorax with two basal impressions, the outer quite short, basal marginal line variable, sometimes entire, often visible near the angles only; hind trochanters of male half as long as the femur and obtuse at tip; scutellar stria distinct..... **angustus.**

Thorax with but one basal impression, the basal marginal line entirely wanting; hind trochanters of male as in *angustus*; scutellar stria distinct.. **caligans.**

The last species resembles in a marked degree, small specimens of *Stenomorphus rufipes*.

P. Blanchardi n. sp.—Form rather robust, piceous, shining, legs and antennæ rufo-testaceous Head smooth, frontal impressions short; thorax cordate, wider than long, sides strongly arcuate, rather deeply sinuate posteriorly, the hind angles rectangular, surface smooth and shining, without punctures at base, median line fine and entire, basal impressions single, deep, straight, extending nearly a third to the front, basal marginal line entire and very distinct; elytra rather broadly oval, more acute behind, moderately convex, humeri not dentate, striæ rather deep, distinctly punctured, the sides of the intervals slightly

crenate, the intervals slightly convex, a dorsal puncture on the third stria behind the middle; body beneath smooth, shining, prosternum not margined at tip. Length 6 mm.; .24 inch.

This is the smallest species outside of some in the Cryobius series known to me in our fauna. It has the general aspect of *honestus*, although less convex, and somewhat more acute posteriorly. It may be known from that species by the following points:

Thorax punctate at base, without marginal line, basal impressions arcuate; striæ not punctate.....**honestus.**
Thorax smooth at base, marginal line entire, basal impressions straight; striæ punctate, intervals crenate.....**Blanchardi.**

The unique before me was collected by Mr. F. Blanchard at Highland, North Carolina.

BEMBIDIUM Latr.

B. haplogonum Chd. is a variety of *erosum* Motsch. (*mannerheimii* Lec.), in which the elytra are piceous with æneous surface lustre, a faint paler space near the humerus, and an oblique space near the apex.

B. plagiatum Zimm. is a *picipes* Kby., with a faint pale spot at apical third.

B. lacunarius Zimm. is a *picipes* with imperfectly colored elytra.

B. arcuatum Lec. agrees perfectly with specimens of *undulatum* St. as sent me from London.

B. planum Hald.; the name is preoccupied, and *Guexii* has been suggested by Chaudoir, Rev. Mag. Zool. 1868.

DISCODERUS Lec.

D. cordicollis n. sp.—Form rather depressed, piceous to castaneous in color, shining, the darker specimens with a faint æneous lustre, antennæ and legs always paler. Head smooth, frontal impressions short, in some specimens two punctiform foveæ between the eyes; thorax rather more than half wider than long, broadly cordate, sides arcuate and gradually narrowing to the base, the hind angles entirely obliterated, disc feebly convex, smooth, rarely feebly transversely wrinkled, basal impressions short, but rather broad; elytra subdepressed, oblong oval, striæ fine not punctate, intervals slightly convex and smooth ♂, or flatter and feebly alutaceous ♀, the usual rows of punctures on the alternate intervals; body beneath smooth, less shining than above, prosternum not margined at tip. Length 7.5–8.5 mm.; .30–.34 inch.

In both sexes there is but one anal puncture on each side. The male is more shining than the female, and the elytral intervals more convex. The last ventral of the male is more obtusely arcuate at

apex, that of the female being much more acute and slightly elevated in an obtuse carina near the middle. The male has a few squamules on the anterior tarsi. Tibiæ straight in both sexes.

This species is the most depressed of any in our fauna, and has the thorax much more narrowed behind, resembling a diminutive *Polpochile capitata*. There is no depression of the lateral margin of the thorax, as is usual in our heretofore described species.

Occurs from Fort Yuma eastward to Tucson, Ariz. (Wickham.)

D. crassicollis n. sp.—Form robust, convex, piceous, shining, without trace of metallic surface lustre; antennæ, palpi, and usually the labrum, castaneous; head impunctate, frontal impressions very short; thorax quadrate, a little wider than long, slightly narrowed at base, widest one-third from apex, sides regularly arcuate, margin not depressed, hind angles obtusely rounded, disc convex, median impression faint and short, basal impressions broad, but shallow and vague; surface smooth, with a few longitudinal wrinkles at base; elytra not wider than the thorax, sides feebly arcuate, disc convex, finely striate, striæ not punctate, intervals smooth, very feebly convex, the inner sides of 3-6-8 with the usual punctures fine and rather indistinct; body beneath slightly paler, shining, prosternum not margined at tip, but with two (usually) prominent bristles on each side; abdomen very sparsely punctate, coarser punctures on the intercoxal process. Length 12.5 mm.; .50 inch.

Although reasonably certain that both sexes are before me in the five specimens examined, no well marked sexual differences have been observed. The last ventral segment bears two setæ on each side. The middle tibiæ are not longer than the anterior, are broader toward the tip, slightly arcuate and beset on the outer side with short spinules. The posterior tibiæ are also very slightly arcuate. The anterior tarsi are not furnished with squamules.

This species is evidently very closely allied to *acinopoides* Bates (Biol. Cent. Am. Col. i, p. 63), which is described as having the elytra cupreous and the sides of the thorax straight and not arcuately narrowing as in the present species.

It is the most robust and convex species in our fauna, quite unlike our others, and resembling an Acinopus more nearly than Discoderus.

Occurs in southern Arizona.

ANATRICHIS Lec.

This genus has been divided by Chaudoir (Ann. Fr. 1882, p. 322) into Anatrichis and Oodiellus, the former represented by our *minuta*, the latter (which Mr. Bates very properly considers a synonym of *Oodinus* Mots.) typified by *mexicanus* Chd. (1882) = *piceus* Mots. (1864). In the paper above cited Chaudoir describes three addi-

tional species of Anatrichis, two from the East Indies, the third Australian. Four species are referred to Oodiellus, one from Mexico and three from Brazil. Mr. H. W. Bates describes as Anatrichis two more from Mexico which must be referred to Oodiellus, whether regarded as a section or a valid genus. The characters of the latter genus are derived entirely from the mouth parts and do not seem to be of sufficient moment for generic separation, as Mr. Bates has remarked, an opinion in which I fully concur.

In his posthumous work Chaudoir fails to mention a character of the male of Anatrichis observed by LeConte (Trans. Am. Philos. Soc. 1853, x, p. 391). The middle tibiæ have on the inner side at the lower third an emargination resembling somewhat that of the front tibia. This character is not observed in the only male of Oodinus examined. It would be interesting to know what value this has, in addition to those given below, for the separation of Anatrichis and Oodinus.

There is, however, one character more easily seen which will separate the species of the two divisions without, to my mind, having any greater weight than those used by Chaudoir.

As far as can be gathered from descriptions the species separate in the following manner:

Elytral striæ distinctly punctate.....S. G. **Anatrichis.**
Elytral striæ fine and simple .....S. G. **Oodinus.**

The former is represented in our fauna by *A. minuta* Dej., with shining, finely punctate surface, the basal impressions of the thorax deep but short. The apex of the prosternum is distinctly margined.

The subgenus Oodinus is represented by two species.

Form more broadly oval than *A. minuta*, surface more opaque; first and second elytral striæ uniting at base, terminating together in an ocellate fovea; prosternum not margined at tip..... **picea** *Mots.*
Form oblong, recalling a diminutive *Lachnocrepis parallela*, surface shining; striæ all partly obliterated at base, an ocellate fovea near the end of the second; prosternum margined at tip .....**oblonga** n. sp.

The genus Anatrichis is properly considered feminine in its termination by LeConte, Chaudoir and the Catalogus. Mr. Bates, however, appears to regard it as masculine from his specific names.

A. picea Mots. (*Oodinus*), Bull. Mosc. 1863, iv, p. 353; Bates, Biol. Cent. Am. Col. i, p. 47, pl. iii, fig. 11.
mexicanus Chaud. (*Oodiellus*), Ann. Fr. 1882, p. 323 (partim).

More broadly oval than *minuta*. The surface is less shining, without punctuation and extremely minutely alutaceous; the median line of the thorax is ex-

tremely fine and the basal impressions very shallow and vague; the elytral striæ are fine and sharp, without punctures, the intervals flat, minutely alutaceous, the third with the two dorsal punctures behind the middle; the prosternum is obtuse at tip and without marginal line. Length 6 mm.; .24 inch.

The specimen before me is a male. The first four joints of the anterior tarsi are dilated as in *minuta*, but the middle tibiæ are simple.

Occurs in our fauna in southern Texas and Central America to Santarem, in Brazil.

A. oblonga n. sp.—Oblong, piceous-black, somewhat shining; antennæ piceous, the three basal joints and palpi rufo-testaceous; head without frontal impressions, the surface extremely minutely alutaceous; thorax about one-third wider at base than long, sides arcuately narrowing to apex, median line very finely impressed, the basal impressions deep but short, surface minutely alutaceous; elytra oblong, sides feebly arcuate, striæ sharply impressed but not punctate, not quite reaching the base, an ocellate fovea near the base of the second, intervals flat, very minutely, sparsely punctate and finely alutaceous, the dorsal punctures of the third interval indistinct; body beneath more shining than above, the prosternum with marginal line at tip; legs castaneous. Length 6 mm.: .24 inch.

This species is evidently closely related to *longula* Bates, and may even be the same, although I can hardly apply his description of the thorax to my specimen: "transversim quadrato, antice paullo magis quam postice angustato."

The surface sculpture is so minute that a moderately high power is required to detect the alutaceous structure and the elytral punctures.

One specimen ♀, Texas near the lower Rio Grande.

OODES Bon.

From the description given by Chaudoir, in 1882, it seems that the species known to us as *texanus* Lec. is the same as *mexicanus* Chev.

O. duodecimstriatus Chev. According to Chaudoir, who has examined types, this name should replace *O. Lecontei* Chd. in our lists.

STENOCREPIS Chd.

A specimen in my cabinet collected near the lower Rio Grande of Texas seems to be referable to *S. chalcas* Bates (*chalcochrous* Chd.), Biol. Cent. Am. Col. i, p. 47. It is nearly as elongate as Lachnocrepis, but with a form of thorax as in our Oodes *s.s.* The striæ are very distinctly punctate and the sides of the intervals crenate. The under side of the body is iridescent, the sides of the metasternum with coarse punctures, the first two ventral segments at the sides with very coarse punctures. Prosternum not margined at tip. On the elytra the seventh stria is replaced by a row of extremely indistinct fine punctures.

If the insect before me really represents *S. chalcas*, and of this I have very little doubt, the genus seems to me intermediate between Oodes *s.s.* and Lachnocrepis. With the former it agrees in having the first *four* joints of the anterior tarsi of the male dilated and papillose beneath, although the posterior tarsi are not pubescent beneath. The mode of dilatation of the tarsi is the same as in Lachnocrepis.

It seems to me that Chaudoir was not true to his own methods in uniting Stenocrepis, Stenous and Crossocrepis as sections under the first name. If it be advisable to separate any of them from Oodes, it seems to me desirable to retain Stenocrepis apart, while the other two could be very well united.

In Oodes *s.s.* the entire under side of the body is comparatively smooth, in the others above mentioned the sides of the metasternum and the metapleuræ, and usually the sides of the first two ventral segments are very coarsely punctate.

EUPHORTICUS Horn.

E. occidentalis n. sp.

This name is proposed for a species occurring near Los Angeles, Cal., resembling *pubescens* Dej., and differing in the following manner:

Surface more brilliantly æneous. Elytral striæ very faint, the punctures fine, round and rather distant, intervals flat, punctulate. Length 4 mm.: .16 inch.

The punctures of the elytral striæ do not extend beyond the middle in either species, but in *pubescens* they are large and more closely placed than their own diameters. On the other hand the fine punctures of the intervals are sparser and less distinct in *occidentalis* than in *pubescens*. In the latter species the tibiæ are always paler than the femora, in the former they are as dark as the femora.

PŒCILOCHRUS Bonv.

To this genus should be referred the species described by me as *Stethon errans*.

Pœcilochrus may be distinguished from Stethon by the straight prosternal sutures. In both genera the metasternum has a short groove limited by an elevated line begining at the inner side of the middle coxæ and directed backward in a straight line.

Dromaeolus pusillus Horn.—This species, while very unlike our others, has a number of related forms in the Mexican fauna. They nearly all have the prosternal sutures very finely grooved and the

propleural triangle is in absolute union with the prosternum, or very nearly so. In facies they more nearly resemble Thambus than Dromæolus.

I have already called attention to the fact that in Microrhagus (Trans. Am. Ent. Soc. 1886, p. 35) the pubescent fovea on the last or penultimate segment was a sexual character. While the fact is correct, I have wrongly attributed the possession of it to the male. Since then the same character has been elsewhere observed, *Entomophthalmus americanus*, where the female has the fovea and the male a small tubercle.

In the table of Microrhagus (Mon. des Eucnémides) under "23," p. 528, two series of species are separated, the one with femora scarcely darkened, the other with them decidedly brown or nearly black. Fortunately but three species are separated under the last division, otherwise confusion might result, as the color of the legs, as above defined, has no value whatever.

CLADUS Bonv.

While this genus of Eucnemidæ is not represented in our fauna, belonging exclusively to the central American region, I have thought it worth while to call attention to it, as but few interested in purely North American entomology will see the illustration of the extraordinary modification of the mouth parts published by me in the "Biologia Centrali-Americana."

The accompanying illustration is the same as used in that publication, and shows the maxilla of the right side uncovered by the removal of the half of the mentum and on the right side of the cut the remaining half of the mentum. The maxillary palpus is transformed into two long stalks bearing ciliate branches. The labial palpus is primarily divided into four branches, two of which, the first and third, are again divided; all with ciliate branches. The ribbon-like prolongation behind the palpar modification is a modified ligula. The two lobes of the maxilla are sufficiently well shown in the cut and need no explanation.

The utility of this modification in a family in which the mou parts are otherwise quite constant is, for me, beyond explanat The Eucnemidæ seem to live their short lives by the ingestion liquid food, the juices of decaying wood and similar matters, so t this modification may assist capillary action, although there does seem any reason why Cladus should be so provided and the clos allied Fornax not.

PALÆOXENUS n. g.

This new generic name is suggested for a species described by some years ago as *Cryptostoma Dohrnii.*

At that time I had seen no specimen of Cryptostoma, and failure to record several important characters in the Bonvouloir scription caused me to refer my specimen to that genus. Thro the kindness of Mr. Ed. Fleutiaux I have been enabled to stud specimen of *C. spinicorne*, and can now indicate the differences:

Palæoxenus.—Antennæ simple in both sexes, the last two jo shorter, the terminal joint broader than long, squarely truncate, chisel-shaped on its terminal edge. Mesosternum oblique, broa grooved. Eyes longer in their vertical diameter and without tinct supra-orbital ridge.

Cryptostoma.—Antennæ with a spiniform process from the base third joint ♂, or with a spine on the posterior side near apex first joint ♀, the terminal joint longer than the preceding and eit slender ♂, or very acutely oval at tip ♀. Mesosternum prominc the sides elevated, forming the usual receptacle for the tip of prost num. Eyes oval, very little longer vertically and with disti supra-orbital ridge.

PHENGODES Latr.

P. piceollis n. sp.—Head piceous black, deeply, arcuately impressed tween the eyes, and longitudinally toward the clypeus, in front of the transv groove coarsely and closely punctate, behind it coarsely longitudinally strig and punctate; antennæ not half as long as the body, piceous-black, the branc fuscous, the basal joint yellow; eyes relatively small; thorax about one-h wider than long, apex arcuate, sides arcuate near the front, then parallel to ba lateral explanate border moderate, disc moderately convex, a round fovea ea side near the apex, a slight longitudinal impression at middle nearer the ba surface shining, rather finely not closely punctate, more distinctly near the sid sparsely flavo-pubescent, color piceous, with the entire limb narrowly testaceo scutellum piceous; elytra yellowish testaceous, gradually fuscous toward t apex; abdomen yellowish testaceous, the segments piceous along their anter border, beneath piceous, shining, the border and last segment pale; meso-me

sternum piceous, shining, punctate; legs yellowish testaceous, the coxæ and tarsi piceous. Length 10.5 mm.; .42 inch.

The explanate border of the thorax is broader than in *fusciceps*, but less explanate than in *plumosa*, *frontalis*, or *laticollis*. It should be associated with *fusciceps* and *Sallei* from the antennæ being shorter than half the body. It is the only species in our fauna with a piceous thorax.

One specimen, collected in Ramsey County, Minn., and given me by Mr. Otto Lugger.

P. plumosa Oliv.

The type of this species, which is now in the British Museum, was collected by M. Francillon in Georgia. An examination of it in comparison with *frontalis* shows, among other characters, much smaller eyes, *i.e.*, the eyes when seen from above are scarcely wider than half the distance to the median line of the head, while in *frontalis* the eyes are fully as wide as the distance to the middle.

ERGATES Serv.

E. neomexicanus Casey is an absolute synonym of *E. spiculatus* Lec. The characters given to separate the two are purely individual, and are seen in specimens from Vancouver as well as in those from New Mexico.

ACOMA Casey.

The reference of this genus to the Melolonthine series is a mistake. It is plainly a Laparostict, and, like Pleocoma, has the mouth-parts of the male (the only sex known) much reduced, and in a manner similar to Pleocoma. Its position in our series is after the latter genus.

Polyphylla speciosa Casey, described from the female, is the female of *decemlineata* Say.

ELEODES Esch.

E. Wickhami n. sp.—Elongate, black, shining, elytra with slight velvety lustre; antennæ a little longer than the head and thorax, the third joint decidedly longer than the next two; head sparsely punctate; thorax subquadrate, a little wider than long, slightly narrowed behind, sides slightly arcuate in front, oblique posteriorly, anterior angles not everted; disc moderately convex, sparsely, very finely and indistinctly punctate; elytra elongate oval, attenuate posteriorly, disc convex with rows of extremely fine, indistinct punctures; body beneath more shining than above, the abdomen transversely wrinkled. Length 27 mm., including cauda 33 mm.; 1.08 inch.; 1.32 inch. Pl. 1, fig. 12.

than long. The most striking character it possesses is in the great dissimilarity of the vestiture of the thorax in the two sexes.

Occurs in northern Florida. Specimens were given me by Dr. Hamilton and Mr. Henshaw.

TEGRODERA Lec.

T. erosa Lec.

The usual form of this species as found at San Diego and vicinity, has the reticulations of the elytra very coarse. The color is pale orange-yellow, always with the tip piceous for a short distance. The specimens seem about equally divided between those with a piceous band across the middle and those without it.

There occurs in Owen's Valley, where I collected it rather abundantly, a form which seems almost entitled to rank as a distinct species, although I consider it merely a race.

T. erosa, race *latecincta.*

Elytra with reticulations much closer than in the typical form, piceous space at apex better indicated, at middle a rather wide, exactly transverse piceous fascia, the edges undulating.

This form seems a little more robust, and the texture of the elytra firmer and less coriaceous.

PYROTA Lec.

P. Akhurstiana n. sp.--Elongate, black, surface shining, the front, a triangular space at apex of thorax, the base and entire limb of the elytra narrowly red; antennæ black; head sparsely punctate, a vague longitudinal impression of the front; thorax narrow, sides parallel near base, narrowed at apical third, a vague depression at middle of base, surface shining, sparsely punctate; elytra vaguely bicostate, the surface nearly smooth, the punctures minute and very indistinct; body beneath black, shining, very sparsely punctate; legs black. Length 15–22 mm.; .60–.80 inch. Pl. 1, fig. 9.

Male. Third joint of antennæ broader at base than apex, forming a rounded angle; terminal joint of maxillary palpus placed transversely, elongate oval, narrower at apex, under side concave, with a sensitive surface covering half the area; last ventral segment feebly emarginate.

Female. Third joint of antennæ narrower at base than at apex; last joint of maxillary palpus flattened cylindrical, slightly curved; last ventral segment with a small but acute incisure.

This species is related to *dubitabilis* (*vittigera* || Lec.), but differs notably in the smoother and more shining surface, the costæ of the elytra are less distinct and finely, the color of the thorax and legs is different.

Occurs in N. Mexico (Akhurst) and at Tucson, Ariz. (Wickham).

PYROCHROA Geoff.

P. californica n. sp.—Black, subopaque, thorax and scutellum orange-yellow, the former with a darker central cloud: antennæ black, acutely serrate: head shining, sparsely punctate, deeply transversely impressed between the eyes; thorax transversely oval, median line impressed, terminating in an oval depression posteriorly, surface sparsely punctate, but with an area of dense coarse punctures each side of the oval depression, surface clothed with fine silken pubescence: elytra densely punctate scabrous, vaguely striate, clothed with short fine black pubescence; body beneath very black, shining, moderately closely punctate; legs and coxæ black. Length 13 mm.; .52 inch.

Very distinct from any of our species by the entirely black color, the thorax and scutellum alone orange-yellow.

One specimen ♀, collected by Mr. D. W. Coquillett near Los Angeles, Cal.

BUPRESTIDÆ.

Pœcilonota debilis Lec. An examination of the type of this insect shows it to be merely a female, rather poorly developed of *P. cyanipes*. In the female of the latter when of full development there is a feeble emargination of the last ventral segment. In the *debilis* the segment is nearly entire.

DYSTAXIA Lec.

The males of *D. Murrayi* Lec., the only species known, have the last ventral deeply and acutely triangularly emarginate. The antennæ are slender and extend to a point opposite the first ventral suture. the female has the last ventral segment broadly rounded and entire, the antennæ shorter, not reaching beyond the end of the metasternum.

In mature specimens the body above is of an entirely uniform malachite green, with but feeble trace of pubescence.

Before attaining maturity the specimens are dark bronze, with a coppery tinge, and the gray pubescence is more conspicuous. On a specimen of this kind is founded D. Lecontei *Thoms.*

SCHIZOPUS Lec.

In the typical species of this genus, *S. lætus* Lec., the sexes differ in a more striking manner. In the male the under side of the body, head and thorax, all the femora and the first two joints of the antennæ are bluish submetallic. The elytra are orange-red, with a narrow sutural edge blue. Probably when quite recent the elytra are brighter red. The tibiæ, tarsi and antennæ, are rufo-testaceous.

The last ventral segment is broadly triangularly emarginate. The antennæ do not extend much beyond the hind angles of the thorax, and are similar in the sexes.

The female is entirely of a uniform blue above and beneath, sometimes quite green, the last ventral entire.

For the opportunity of recording the sexual differences I am indebted to the National Museum at Washington, where numerous specimens were received from San Diego, Cal.

S. Sallei Horn was described from a female with scarcely any trace of metallic surface color. The elytra are similar in color to *lætus* ♂, except that there is a darker oblique vitta extending from the humeral umbone nearly to the sutural angle. The head and thorax are darker in color.

The oblique impression of the thorax, on which I laid some stress, seems not to have great value, as it seems to be a variable quantity in *lætus*. The claws of *Sallei* are, however, much less distinctly cleft, and seem rather to be provided with a small tooth at middle after the style of some Lachnosternæ.

This species was collected at Mariposa, Cal., by Mr. Alphonse Thevenet.

Mr. F. Blanchard is quite correct in recording the presence of the "ante-coxal piece" of the metasternum in both Schizopus and Dystaxia. The presence of this piece seems to be quite characteristic of the Buprestidæ. In the genus Lissomus, of the Throscidæ, there is no trace of this piece, so that by the fortunate discovery by Mr. Blanchard we have a more ready method of separating the latter family from the Buprestidæ than previously existed, Lissomus having always been an annoying element.

While the presence of the "ante-coxal piece" and its modification, or entire absence, plays an important part in the Adephagous series, it would hardly have been suspected to have similar utility in a series so remotely separated as the Serricornia.

ACTENODES Lec.

A. mendax n. sp.—Form of *calcarata*, but somewhat more convex, color dark greenish bronze varying to cupreous, feebly shining; antennæ short, obtusely serrate; front rather flat, coarsely and closely punctate, not longitudinally impressed, surface rather uneven in the female; thorax more than twice as wide as long, sides parallel, with a slight sinuation, obliquely narrowed at anterior third, disc regularly convex, moderately coarsely and closely punctate, with a

tendency to form transverse strigæ; elytra with rarely a trace of a costa near the suture, the surface scabrous, with a tendency to form transverse strigæ to a slight extent, the oblique portion of the margin serrate; body beneath more shining than above, punctate and transversely strigose, prosternum more coarsely punctate; anterior femora toothed at outer third. Length 12—17 mm.; .48—.68 inch.

In both sexes the last ventral is truncate, squarely in the ♀, slightly emarginate ♂. The anterior tibiæ are serrate in the male very distinctly, but in the female this is but faintly indicated.

This insect has been a long time in my cabinet, but I refrained from naming it, hoping that it was a known Mexican form, or that it would be described in the "Biologia." This not proving the case, and as specimens are occasionally being sent me I have thought it well that it should be described.

Known to me from Texas to Fort Yuma. A specimen before me is labeled Illinois, but the locality is open to doubt.

Bibliographical Reviews.

In a recently published part of the "Biologia Centrali-Americana (vol. iii, pt. 1)," in reviewing the Throscidæ, it was observed that Throscus, as then constituted, was clearly divisible into two genera:

THROSCUS includes those in which the metasternum is simply obliquely impressed, while

AULONOTHROSCUS will receive those with a rather deep and well-defined groove. To this division belong *validus*, *punctatus*, *invisus*, *constrictor*, *convergens* and *pugnax*, the remaining species will continue as Throscus, all the European species belonging here, and must be accepted as the typical forms.

In the same essay, a few pages after, it will be observed that the name Tharops has been superceded by Isorhipis, the former name having been previously used.

As an illustration of the rather restricted distribution of the Eucnemidæ generally, it will be observed that but few species occur south of our boundary which are found within it, these are *Nematodes atropos*, *Microrhagus humeralis* and *Anelastes Druryi*, the first being somewhat doubtful, while the last is represented in both its races the shining (*Latreillei*) and opaque (*Druryi*) as far south as Guatemala.

In the Mexican fauna the species of the family Throscidæ show nothing in common. In our fauna Throscus *sens. lat.* is represented by thirteen species, and in Mexico by five, while Drapetes contains twenty-six in Mexico and but four with us, in addition to which Lissomus has twelve Mexican species, and is totally unknown in our fauna. Pactopus makes a closer approach to the Eucnemidæ without having any parallel in Mexico.

———o———

There has recently appeared from the able hands of Dr. Candéze a work entitled, "Catalogue Méthodique des Elaterides connus en 1890," which will have great value to those interested in the study of that family. In it all impertinent synonymy has been omitted, only such being given as has not already obtained sufficiently wide circulation. But little has been observed worthy of correction in reference to our species, except that *Megapenthes granulosus* Mels. is on p. 98, while its male is found on p. 190 as *Ludius limbalis* Hbst. Our *Betarmon bigeminatus* Rand. has been omitted. The results of my studies of Cryptohypnus are included in the list, although I have slightly modified the arrangement of the species since my communication to him.

EXPLANATION OF PLATE I.

Fig. 1.—Maxillary palpus of *Cryptohypnus littoralis*.
" 2.—Maxillary palpus of *C. planatus*.
" 3.—Maxillary palpus of *C. restrictulus*.
" 4.—Last ventral segment ♂ of *C. restrictulus*.
" 5.—Last ventral segment ♀ of *C. restrictulus*.
" 6.—*Anthracopteryx hiemalis*.
" 7.—Maxillary palpus of *Anthracopteryx hiemalis*.
" 8.—Claw of *Oedostethus femoralis*.
" 9.—Antenna and maxillary palpus ♂ of *Pyrota Akhurstiana*.
" 10.—Head of *Epicauta straba*
" 11.—Head of *Epicauta* of usual form.
" 12. *Eleodes Wickhami*.
" 13.—*Eleodes longipilosa*.

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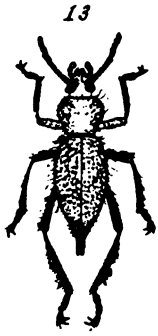
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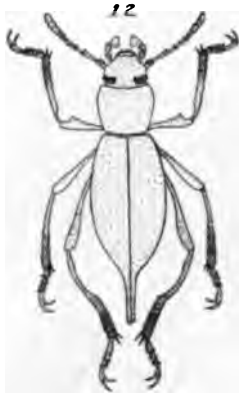
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Descriptions of new species of North American Bees.

BY CHARLES ROBERTSON.

ANDRENA.

In the study of the mutual relations of flowers and insects I have found many insects which I could neither determine myself nor get determined by others. Conspicuous among these are the species of Andrena. In order, therefore, to get names for use in my biological work, I have undertaken to describe as best I could the species which occur in my neighborhood. Some of them may have been described before, by Smith, in British Museum Cat. Hym. and in New Spec. Hym. Brit. Mus. After careful study I have been unable to determine more than two of Smith's species. The fact that a specimen agrees in every detail with Smith's description would not, to my mind, establish the probability of its being the same as its type. His descriptions are limited almost entirely to the colors of the pubescence, which is variable and liable to fade. Thus, of the twenty-four female specimens of *A. Cressonii*, only three show the normal color of the pubescence. The color of the surface is also very variable. The abdomen sometimes varies from entirely red to entirely black. Sets of specimens in which the legs are commonly black, with the apical joints ferruginous, often show individuals having the tarsi, the middle tibiæ at tips, and the hind tibiæ entirely ferruginous.

In all, or most of the species, the ground surface is minutely roughened. Unless there is a distinct punctuation in addition to this, I call the surface impunctate. One trouble with Smith's descriptions is that one cannot always be certain whether he refers to this minutely roughened surface or to a distinct punctuation.

Of the twenty-six species of Andrena mentioned in this paper, I have both sexes, except in five cases. I have taken the sexes of eleven species in copula. These bees can best be collected by watching flowers of willows in Spring and of Compositæ in fall. The females should be identified first and the males referred to them.

I submit a synopsis of all the species which occur in my neighborhood (Carlinville, Ill.) with notes on their time of flight and the flowers which they visit, as well as descriptions of the new species.

Besides those given below I have ten sets of specimens which indicate the presence of several additional species.

Enclosure of metathorax triangular, defined by an impressed line or by absence of pubescence, continued to a point on posterior face of metathorax, rarely strongly rugous.

Face in both sexes without yellow markings.

Abdomen punctate.

Not fasciate.

Abdomen bare, strongly contrasting with the closely hairy thorax.

Pubescence ♀ black, except thorax above, vertex, and about base of antennæ, ♂ paler, with black hairs along the eyes....**bicolor.**

Pubescence fulvous, abdomen black.....**prunі.**

Pubescence pale, abdomen mostly red.....**Perezi.**

Abdomen pubescent, not strongly contrasting with thorax, at most only thinly fasciate.

Large, wings clouded.....**Sayi.**

Smaller, wings clear.....**erigeniæ.**

Fasciate.....**violæ.**

Abdomen impunctate, fasciate, enclosure of metathorax poorly defined.

Abdomen black.....**salicis.**

Abdomen slightly greenish, pubescent, scopa fuscous above..**erythronii.**

Abdomen blue.....**geranii.**

Abdomen greenish, enclosure of metathorax narrow.....**polemonii.**

Abdomen greenish, enclosure of metathorax broad.....**illinoiensis.**

Clypeus of ♂ yellowish, with a dark spot on each side.

Clypeus alone yellowish; abdomen impunctate.

Large, stigma small, thorax densely pubescent.....**helianthi.**

Smaller, abdomen fasciate, basal process of labrum ♀ bifid..**solidaginis.**

Smaller, clypeus shining, impunctate, except on sides..**flavo-clypeata.**

Very small (6—7 mm.), abdomen greenish.....**zinziæ.**

Clypeus and a spot on each side of face yellowish.

Abdomen impunctate.

Small, abdomen greenish .....**zinziæ.**

Larger, abdomen black .....**asteris.**

Abdomen punctate.

Wings clouded, basal process of labrum bifid.....**rudbeckiæ.**

Wings nearly hyaline, basal process of labrum small, short..**Cressonii.**

Face in ♀ with yellow markings.

A yellow spot on each side.....**pulchella.**

Clypeus yellow .....**aliciæ.**

Enclosure of metathorax bounded by a salient rim, terminating at the edge of the declivity, commonly truncate, strongly rugous; second segment of abdomen bearing on each extreme side of base an opaque depression, which in the ferruginous species (*mariæ*) appears as a black spot.

Abdomen without fasciæ, or the fasciæ broadly interrupted.

Thorax bare, very sparsely punctured.....**nudæ.**

Thorax with fulvous pubescence, closely and strongly punctured..**rugosæ.**

Thorax with pale pubescence, abdomen mostly red.....**mariæ.**

Abdomen with white fasciæ, interrupted on second segment.

Thorax with dark fulvous pubescence, strongly punctured.....**Forbesii.**

Thorax with pale fulvous pubescence, feebly punctured.....**claytoniæ.**

Belonging to first group, but ♂ unknown, marginal cell and beyond clouded. **nubecula.**

A. bicolor F. (= *A. hirticeps* Sm. ♂)

Sixteen females and eighteen males taken from March 23d to May 5th on flowers of *Isopyrum biternatum*, *Dentaria laciniata*, *Viola pubescens*, *V. striata*, *Claytonia virginica*, *Cercis canadensis*, *Chærophyllum procumbens*, *Erigenia bulbosa*, *Salix humilis*, *Erythronium albidum* and *Uvularia grandiflora*. I took five pairs in copula on flowers of *Erigenia*, April 7th.

A. prunî ♀.—Black; head as broad as thorax, clothed with pale fulvous pubescence; clypeus rather sparsely and strongly punctured, except a median raised line, which is impunctate; basal process of labrum semicircular, large, not truncate at tip; antennæ with flagellum dull ferruginous beneath; thorax closely, not strongly punctured, the surface concealed by close fulvous pubescence; wings yellowish hyaline, the apical margins faintly clouded, third submarginal little longer than second, nervures, stigma and tegulæ reddish testaceous; enclosure of metathorax minutely roughened; abdomen ovate, depressed, shining, with a thin fulvous pubescence on the sides, segments closely punctured, except a broad, depressed apical portion, which is rufo-piceous, apical fimbria bright fulvous; legs clothed with pale fulvous pubescence, the tarsi, and sometimes posterior tibiæ, ferruginous. Length 11—12 mm.

♂.—Blacker, the wings and pubescence paler, antennæ as long as thorax, more ferruginous beneath. Length 10 mm.

Ten females and one male. There is a strong contrast between the thorax and abdomen, the former being closely pubescent and fulvous, the latter being bare and black.

I have taken it from April 23d to June 2d, on flowers of *Staphylea trifolia*, *Claytonia virginica*, *Viburnum prunifolium*, *Prunus serotina* and *Pastinaca sativa*. The male and female were taken in copula on flowers of *Viburnum*, April 29th.

A. Perezi ♀.—Black, the abdomen red; clypeus flat, not very strongly punctured, a median line impunctate; basal process of labrum broad, semicircular, truncate or emarginate at tip; flagellum dull testaceous beneath; thorax sparsely and feebly punctured, thickly clothed with pale pubescence; enclosure of metathorax finely roughened; wings hyaline, apical margin faintly clouded, nervures and stigma testaceous, tegulæ piceous; legs blackish, tarsi testaceous; abdomen shining, sparsely and very feebly punctured, red, the apical segments often blackish at base, and with broad testaceous apical margins, fasciæ wanting, anal fimbria pale dirty yellow. Length 10—11 mm.

♂.—Resembles the female, clypeus with a dense yellowish white beard, flagellum paler beneath, pubescence a little longer and often more yellowish; abdomen with the segments black at base, reddish beyond, more extensively on the sides, and with broad testaceous apical margins; sometimes the abdomen is entirely black, only showing a little reddish at base of testaceous apical margins and on extreme sides. Length 8--10 mm.

Four females and ten males, taken April 17th and 21st, on flowers of *Salix humilis* and *S. cordata*. The sexes were taken in copula. Dedicated to Prof. J. Pérez, of Bordeaux.

A. Sayi ♀.—Black; clypeus rather strongly punctured, with a media punctate elevated line; basal process of labrum very large, semicircular, tru at tip; thorax with close shallow punctures anteriorly, scutellum sparsely tured, postscutellum swollen, enclosure of metathorax rather coarsely reticu thorax with short, thin, pale fulvous pubescence; wings fulvo-hyaline, margin broadly clouded, nervures and stigma honey-yellow, tegulæ reddis taceous; legs dull ferruginous; abdomen shining, finely and sparsely punct apical margins of segments faintly depressed, the abdomen clothed with pubescence, which often forms thin apical fasciæ, anal fimbria fulvous. Le 13—15 mm.

♂.—Resembles the female; head subquadrate, wider than thorax; the p cence somewhat longer, thicker, more fulvous; wings often paler. Lengt 12 mm.

Twelve females, twenty-three males, taken from April 8th to 7th, on flowers of *Dentaria laciniata*, *Stellaria media*, *Claytonia ginica*, *Staphylea trifolia*, *Cercis canadensis*, *Prunus serotina*, *Am chier canadensis*, *Ribes gracile*, *Erigenia bulbosa*, *Antennaria pl ginifolia*, *Salix cordata* and *Erythronium albidum*. The sexes taken in copula on flowers of *Salix*, April 28th.

This may be the *A. valida* of Say, or the *A. obscuripennis* of Sn

A. erigeniæ ♀.—Black; clothed with long whitish pubescence; he broad as thorax; clypeus strongly punctured; basal process of labrum very and broad, sometimes slightly emarginate anteriorly; flagellum ferruginou neath towards tip; thorax with large, shallow, sparse punctures, the surfac concealed by pubescence; enclosure of metathorax longitudinally striate at finely roughened beyond; wings yellowish hyaline, nervures and tegulæ honey-yellow; legs slender, scopa white, inclining to fuscous at base above, tarsi with yellowish hairs; abdomen clothed with thin pubescence, which is ger and whiter towards the apex of the segments, where it forms thin fa the anal fimbria inclining to fuscous, the segments finely roughened and r strongly punctured at base, smoother beyond, apical margins testaceous. Le 8—9 mm.

♂.—Resembles the female; face subquadrate, the eyes somewhat wider a below than above, the clypeal region densely clothed with a long beard of w pubescence; mandibles long, tip of one nearly reaching to base of the o toothed remotely from the apex and rufous from below the tooth to the tip tennæ longer, flagellum dull testaceous beneath; wings more hyaline, nerv pale testaceous, second submarginal cell very variable in form and size, s times receiving the recurrent nervure beyond the middle, sometimes far b it; middle tibiæ with a slender spine at tip exteriorly. Length 7—8 mm.

Seven females, ten males, taken from March 26th to May 14th flowers of *Claytonia virginica*, *Erigenia bulbosa* and *Hydrophyl appendiculatum*. This species is sometimes infested by *Stylops*. is closely allied to *A. texana* Cress.

A. violæ ♀.—Black; head wider than thorax, clothed with pale ochraceous pubescence; clypeus strongly produced and strongly punctured; basal process of labrum very large, semicircular, notched at tip; flagellum ferruginous beneath towards tip; thorax sparsely and rather strongly punctured, clothed with thin, pale, ochraceous pubescence; wings yellowish hyaline, second submarginal two-thirds as wide as third, nervures, stigma and tegulæ dull honey-yellow; enclosure of metathorax slightly roughened; posterior tarsi and apical joints of anterior and middle pairs ferruginous; abdomen rather closely, strongly and evenly punctured, margins narrowly testaceous, third and fourth broadly and slightly depressed, 2-4 each with an even, narrow, dense apical fascia of yellowish pubescence, anal fimbria brown. Length 10 mm.

♂.—Closely resembles the female, but the pubescence is paler, flagellum more yellowish beneath, wings more hyaline, nervures and tegulæ darker. Length 8--9 mm.

Four females, two males, taken on flowers of *Viola palmata*, April 20th and 21st. The tongue of this species is remarkably long and slender.

A. salicis ♀.—Black; the pubescence fulvous; head as wide as thorax, clypeus closely and strongly punctured, a median raised line impunctate; basal process of labrum small, truncate; thorax with sparse shallow punctures, the pubescence thin; wings yellowish hyaline, faintly clouded beyond the marginal cell, nervures and stigma honey-yellow, second submarginal one-half as wide as third, tegulæ dark with a dull testaceous spot; enclosure of metathorax finely roughened; abdomen finely roughened, but impunctate, narrow apical margins of segments dull testaceous, apical margins of second, third and fourth segments with a thin fascia of fulvous pubescence, more or less interrupted on second and third, anal fimbria fusco-fulvous; hind tarsi ferruginous or yellowish, the apical joint blackish. Length 8—9 mm.

♂.—Resembles the female; the abdomen not fasciate. Length 7 mm.

Three females, one male, taken from April 10th to 20th, on flowers of *Amelanchier canadensis*, *Salix humilis* and *S. cordata*.

A. erythronii ♀.—Black; clypeus flat, rather rough with transverse rugæ, but not very closely or strongly punctured, a central longitudinal ridge impunctate; basal process of labrum triangular, truncate at tip; thorax sparsely and feebly punctured, clothed with thin, pale fulvous pubescence, enclosure of metathorax finely roughened; wings hyaline, nervures, stigma and tegulæ dull testaceous; legs blackish or dull ferruginous, apical joints of tarsi paler, scopa white beneath, fuscous above; abdomen finely roughened, impunctate, apical margins of segments depressed, the extreme edge pale testaceous the abdomen clothed with thin pubescence, which forms whitish fasciæ on the apical margins of the segments, anal fimbria fuscous. Length 10—12 mm.

♂.—Resembles the female; mandibles long, face subquadrate, clypeus with a thin white beard, head produced behind the eyes; abdomen sparsely and finely punctured, more greenish than in female, testaceous, apical margins broader. Length 8—9 mm.

Ten females, three males, taken from April 2d to 13th, on flowers of *Erigenia bulbosa*, *Salix humilis* and *Erythronium albidum*.

A. geranii ♀.—Blue-black; clothed with long, thin, whitish pubescence: clypeus sparsely punctured, shining, with a faint purplish reflection; basal process of labrum long, narrow, with a rather deep notch at tip; lateral grooves of face filled with a dark, brownish black tomentum; thorax sparsely punctured, scutellum more shining and with more evident metallic reflections, enclosure of metathorax longitudinally striate at base, smoother beyond; wings hyaline, stigma fuscous, nervures fuscous or testaceous, second submarginal receiving the recurrent nervure before the middle, tegulæ piceous, sometimes with a large testaceous spot; abdomen blue, shining, impunctate, apical margins of segments 2-4 each with a thin fascia of white pubescence, anal fimbria dirty white. Length 7—8 mm.

♂.—Closely resembles female; face rounded, thinly clothed with whitish pubescence, mandibles short, toothed near the tip; flagellum long, testaceous beneath; middle tibia with a slender spine at apex exteriorly. Length 6—7 mm.

Three females, six males, taken May 3d and 11th, on flowers of *Geranium maculatum* and *Osmorrhiza longistylis*.

A. polemonii ♀.—Robust; greenish, with bluish and purplish reflections in certain lights, clothed with thin whitish pubescence; clypeus densely and minutely roughened, strongly and sparsely punctured, with a strong purplish reflection; basal process of labrum broad and truncate, flagellum testaceous beneath; thorax sparsely punctured, clothed with thin pale pubescence, enclosure of metathorax finely roughened, poorly defined; wings hyaline, tegulæ and nervures testaceous, second submarginal cell large; abdomen impunctate, apical margins of second, third and fourth segments and anal fimbria with whitish pubescence. Length 6—7 mm.

♂.—Resembles the female; face thinly pubescent, antennæ long, testaceous beneath, middle tibia spined at apex. Length 6 mm.

Three females, one male, taken on flowers of *Polemonium reptans*, on April 20th and 26th.

A. illinoiensis ♀.—Form slender; greenish, with bluish and purplish reflections, clothed with thin whitish pubescence; clypeus rather closely and strongly punctured; basal process of labrum small, semicircular; flagellum dull testaceous beneath towards tip; thorax impunctate or nearly so, the scutellum purplish, enclosure of metathorax broad, rough; wings long, yellowish hyaline, nervures testaceous, tegulæ pale testaceous; abdomen impunctate, apical margins of segments testaceous, second, third and fourth with short, thin fasciæ of white pubescence, anal fimbria whitish. Length 7—8 mm.

♂.—Resembles the female; the clypeus densely bearded, flagellum beneath and tarsi usually testaceous; thorax more strongly punctured, middle tibia with a short spine at tip. Length 6—7 mm.

Thirteen females, fifteen males. This species is commonly infested by *Stylops*. I have taken it from April 2d to May 3d, on flowers of *Stellaria media*, *Geranium maculatum*, *Amelanchier canadensis*, *Erigenia bulbosa*, *Salix cordata* and *S. humilis*. Three pairs were taken in copula on flowers of *Salix cordata*, April 10th.

A. helianthi ♀.—Black, inclining to dull ferruginous; clypeus rather closely and strongly punctured; basal process of labrum short, triangular, truncate or notched; thorax clothed with long, dense, ochraceous pubescence, which conceals the surface, sparsely punctured with shallow punctures, enclosure of metathorax finely roughened; wings clear, hyaline, stigma small, fuscous, nervures pale testaceous, tegulæ entirely pale testaceous; abdomen impunctate, or with fine sparse punctures, broad and slightly depressed apical margins of segments rufo-piceous, apical margins of second, third and fourth segments with thin fasciæ of pale pubescence, often more or less interrupted on the disc, anal fimbria pale fulvous; legs dull ferruginous, posterior tibiæ and tarsi yellowish. Length 12—13 mm.

♂.—Resembles the female: clypeus yellow, antennæ longer, flagellum dull testaceous beneath; all tibiæ at apex, posterior tibiæ exteriorly and all tarsi yellow; abdomen more punctured, broad apical margins of segments pale testaceous. Length 10—11 mm.

Twelve females, eight males, taken on flowers of *Helianthus grosseserratus*, September 12th to 25th.

A. solidaginis ♀.—Black; clothed with thin, white pubescence; clypeus sparsely punctured, more strongly at tip; basal process of labrum deeply bifid, forming two teeth; thorax sparsely and feebly punctured, thinly clothed with whitish pubescence, enclosure of metathorax finely roughened; wings hyaline, nervures and stigma fuscous, tegulæ piceous; legs black, inclining to dull ferruginous, scopa white beneath, fuscous above; abdomen impunctate, or with only sparse, feeble punctures, apical margins of segments 2-4 with narrow fasciæ of white pubescence, anal fimbria fuscous. Length 8—9 mm.

♂.—Resembles the female; the clypeus pale yellow. Length 6—7 mm.

Eight females, two males. I have taken it from September 8th to October 11th, on flowers of *Solidago canadensis, S. lanceolata, Boltonia asteroides, Aster* and *Polygonum hydropiper*.

A. flavo-clypeata Sm. (= *A. bipunctata* Cress.)

This bee flies in Spring. I have taken it from April 5th to May 7th, on flowers of *Stellaria media, Claytonia, virginica, Xanthoxylum americanum, Staphylea trifolia, Prunus serotina, Amelanchier canadensis, Erigenia bulbosa, Salix cordata* and *S. humilis*. The sexes were taken in copula on *Salix*, April 10th.

A. zizise ♀.—Black, with an obscure greenish reflection, thinly clothed with pale pubescence; clypeus sparsely and feebly punctured, sometimes with a purplish reflection; basal process of labrum small and narrow, mandibles honey-yellow in middle, rufo-piceous at tip, flagellum testaceous beneath; thorax very thinly clothed with pale pubescence, very sparsely and feebly punctured, enclosure of metathorax rather strongly reticulated, unusually rough for a species of this group; wings long, yellowish hyaline, nervures, stigma and tegulæ testaceous; legs dull ferruginous, often inclining to yellowish; abdomen depressed, impunctate, with an obscure greenish reflection, apical margins of segments pale testaceous, segments 2-4 with apical fasciæ of thin, pale pubescence, anal fimbria dirty white. Length 6—7 mm.

♂.—Closely resembles the female; the clypeus whitish, sometimes there is also a white spot on each side of the face between the upper part of the clypeus and the eye. Length 5—6 mm.

Twenty females, ten males, taken from May 7th to June 4th, on flowers of the following Umbelliferæ: *Zizia aurea*, *Pimpinella integerrima*, *Sanicula marilandica* and *Pastinaca sativa*. The sexes were taken in copula on *Zizia*, May 7th.

A. asteris ♀.—Black; clypeus with sparse, feeble punctures; basal process of labrum small, deeply notched; thorax with sparse, feeble punctures, clothed (at least anteriorly) with long, close, dirty white pubescence, enclosure of metathorax finely roughened; wings fusco-hyaline, nervres and stigma fuscous, tegulæ piceous; legs black, basal joint of middle tarsi broad, scopa yellowish white, fuscous at base above, basal joint of posterior tarsi with fuscous pubescence; abdomen impunctate, or with sparse feeble punctures, apical margins of segments pale testaceous, segments 2-4 with thin fasciæ of white pubescence on their broadly depressed apical margins, anal fimbria fuscous. Length 10—11 mm.

♂.—Resembles the female; abdomen more punctate; clypeus and spot on each side yellowish, the former with two elongate dark spots, basal process of labrum bidentate. Length 9 mm.

Two females, one male, taken October 8th and 11th, on flowers of *Aster*.

A. rudbeckiæ ♀.—Black; clypeus closely and strongly punctured, clothed with close, short, pale pubescence, basal process of labrum cleft, forming two sharp teeth, palpi short, flagellum dull testaceous beneath; thorax densely and finely punctured, densely clothed with very short, dull ochraceous pubescence, enclosure of metathorax finely roughened; wings fulvo-hyaline, the apical margins clouded, nervures testaceous, stigma small, fuscous, tegulæ ferruginous; legs dull ferruginous, clothed with short pubescence, basal joint of middle tarsi broad; abdomen finely roughened, evenly punctured with large, close, shallow punctures, apical margins of the segments depressed, reflecting golden, with a narrow white line at extreme edge; the abdomen clothed with pale pubescence, which forms fasciæ on apical margins of all of the segments, the anal fimbria golden-yellow. Length 13—14 mm.

♂.—Resembles the female; antennæ short, clypeus and a large spot on each side yellowish white. Length 12 mm.

Eleven females, one male, taken on flowers of *Rudbeckia hirta*, June 12th to 23d. The depressed margins of the abdominal segments vary considerably in color, being sometimes golden, pale yellowish, or reddish purple. The sexes were taken in copula.

A. Cressonii ♀.—Black; clypeus closely and rather strongly punctured, except in median line, basal process of labrum small and very short; thorax clothed with thin, fulvous pubescence, rather closely and strongly punctured, scutellum sparsely punctured, enclosure of metathorax small, rough, commonly with longitudinal ridges; wings fusco-hyaline, apical margins a little clouded, nervures and stigma dull testaceous, tegulæ black, often with a dull testaceous

spot; legs black, posterior tarsi sometimes dull ferruginous; abdomen closely, evenly and rather strongly punctured, apical margins of segments 2–4, interrupted on second, with close fasciæ of white pubescence, anal fimbria fuscous. Length 9—10 mm.

♂.—Resembles the female, process of labrum longer, concave anteriorly, clypeus and large spot on each side of face below antennæ, yellow. Length 7—10 mm.

Twenty-four females, twenty-two males, taken from April 5th to June 4th on flowers of *Stellaria media, Claytonia virginica, Xanthoxylum americanum, Prunus serotina, Amelanchier canadensis, Zizia aurea, Polytænia nuttallii, Pimpinella integerrima, Sanicula marilandica, Pastinaca sativa, Heracleum lanatum, Salix cordata* and *S. humilis*. The sexes were taken in copula on *Stellaria*, April 8th. Dedicated to Mr. E. T. Cresson.

A. pulchella ♀.—Black; clypeus dull ferruginous, sometimes with an arcuate yellow spot above, rather strongly but not very closely punctured; basal process of labrum broad, very short, emarginate; mandibles ferruginous in middle, black at tip; flagellum testaceous beneath, lower part of face with a large yellow spot on each side, extending below upon each side of clypeus; thorax closely and rather strongly punctured, the surface concealed by thick, rather long fulvo-ochraceous pubescence, enclosure of metathorax finely roughened; wings hyaline, nervures and tegulæ testaceous, stigma small, dark; legs dull ferruginous, the tarsi, especially the posterior pair, inclining to yellowish; abdomen closely, finely and rather strongly punctured, broad, somewhat depressed, apical margins of the segments pale testaceous, with long pale ochraceous pubescence, which forms thin fasciæ, anal fimbria of the same color. Length 11—13 mm.

Seven females, taken from August 30th to September 20th, on flowers of *Helianthus grosse-serratus* and *H. rigidus*.

A. alicise ♀.—Black, thinly clothed with pale pubescence; clypeus yellow, with a dark spot on each side; basal process of labrum broad, short, slightly emarginate, mandibles not toothed; thorax sparsely and feebly punctured, enclosure of metathorax finely roughened; wings somewhat clouded, nervures and stigma black, tegulæ piceous; legs black, scopa pale fulvous; abdomen opaque, finely roughened, impunctate, or with sparse, feeble punctures, apical margins of segments having laterally narrow fasciæ of white pubescence, anal fimbria fuscous. Length 12 mm.

One female, taken on flowers of *Bidens chrysanthemoides*, Sept. 20.

A. nuda ♀.—Black; clypeus strongly punctured; basal process of labrum large; mesothorax smooth and shining, bare, with very few large punctures, scutellum and postscutellum closely and very strongly punctured; tubercles, a line over the tegulæ, scutellum and postscutellum with short feathery hairs, a row of long hairs on the posterior margin of scutellum; metathorax sharply truncate, rough with coarse reticulations, the disc with strong longitudinal rugæ; wings yellowish hyaline, apical margins faintly clouded, nervures, stigma and

tegulæ dull testaceous; legs black, posterior tarsi inclining to ferruginous; abdomen shining, finely and sparsely punctured, segments depressed to the base, not fasciate, anal fimbria fulvous. Length 9—10 mm.

Eight females, taken from April 2d to June 16th, on flowers of *Staphylea trifolia*, *Prunus serotina*, *Pastinaca sativa*, *Erigenia bulbosa* and *Salix cordata*.

A. rugosa ♀.—Black; clypeus closely and strongly punctured, basal process of labrum broad, rather long, truncate; thorax closely and very coarsely punctured, thickly clothed with short fulvous pubescence, enclosure of metathorax bordered by a salient rim, truncate posteriorly, bearing sharp longitudinal ridges; wings hyaline, apical margins faintly clouded, nervures, stigma and tegulæ testaceous; legs dull ferruginous, apical joints of tarsi paler; abdomen smooth and shining, densely and finely punctured, segments depressed nearly to the base, the depressed portions of the segments more sparsely punctured, fasciæ wanting, except on the extreme sides, anal fimbria fulvous. Length 9—10 mm.

♂.—Resembles the female; less strongly punctured, thorax with the pubescence longer and thinner, antennæ as long as thorax, enclosure of metathorax not so well defined, segments of abdomen not depressed beyond the middle, third and fourth segments with continuous apical fasciæ of pale fulvous pubescence. Length 7—8 mm.

Twelve females, sixteen males, taken from April 2d to 21st, on flowers of *Dentaria laciniata*, *Claytonia virginica*, *Xanthoxylum americanum*, *Amelanchier canadensis*, *Erigenia bulbosa*, *Salix cordata* and *S. humilis*. The sexes were taken in copula on *Erigenia*, April 6th.

A. mariæ ♀.—Black, the abdomen red; clypeus closely and strongly punctured, basal process of labrum long and narrow; flagellum dull testaceous beneath; thorax rather closely and strongly punctured, much more coarsely than the clypeus, clothed with thin pale pubescence, enclosure of metathorax bounded by a salient rim, rounded posteriorly, with sharp longitudinal ridges; wings hyaline, apical margins faintly clouded, nervures and stigma testaceous; tegulæ piceous, with a dull testaceous spot; legs black, inclining to dull ferruginous, apical joints of tarsi paler, hind tibiæ and tarsi sometimes testaceous; abdomen smooth and shining, rather closely and finely punctured, segments depressed beyond the middle, red, the apical margins of the segments and the apical segments more or less blackish, the second segment has a black spot at base on each extreme side, the segments have an apical patch of white pubescence on each extreme side, anal fimbria brownish. Length 9—10 mm.

♂.—Resembles the female; the pubescence often more fulvous; the abdomen is black, commonly with a little red about the ventral surface of the first and second segments, but a male which I took in copula with the female shows no red about the abdomen. Length 7—8 mm.

Seventeen females, eight males. One female specimen, which I am satisfied belongs to this species, has the abdomen black, except a little red at the sides of the first and second segments. I have found this bee from April 2d to 20th on flowers of *Amelanchier canadensis*,

Erigenia bulbosa, *Salix cordata* and *Erythronium albidum*. I have taken the sexes in copula on flowers of *Salix*, April 10th.

A. Forbesii ♀.—Black; clypeus closely and strongly punctured, basal process of labrum broad; thorax rather closely and strongly punctured, like the clypeus, thinly clothed with short fulvous pubescence, enclosure of metathorax bordered by a strong rim, truncate posteriorly; wings hyaline, apical margins somewhat clouded, nervures and stigma dull testaceous, tegulæ piceous, dull testaceous exteriorly; legs black, apical joints of tarsi ferruginous; abdomen closely punctured, especially on basal half of segments, segments 2–4 depressed to the middle, bearing apically narrow fasciæ of white pubescence, interrupted broadly on the second, narrowly on the third, anal fimbria dull ferruginous. Length 10—11 mm.

Twenty females taken from April 7th to June 14th, on flowers of *Stellaria media*, *Claytonia virginica*, *Prunus serotina*, *Amelanchier canadensis*, *Pastinaca sativa*, *Heracleum lanatum*, *Erigenia bulbosa* and *Salix humilis*.

Dedicated to Prof. S. A. Forbes.

A. claytoniæ ♀.—Black; clypeus closely and strongly punctured, often with a median impunctate line, basal process of labrum rather long and narrow, emarginate or notched at tip; thorax rather sparsely punctured with rather fine, shallow punctures, thinly clothed with short, pale fulvous pubescence, enclosure of metathorax rough with strong longitudinal rugæ, with a poorly defined border; wings hyaline, nervures and stigma honey-yellow, tegulæ dull testaceous exteriorly, second submarginal cell receiving the first recurrent nervure near its apex; legs black, inclining to dull ferruginous, the tarsi more or less yellowish, the hind tarsi and sometimes the hind tibiæ yellowish; abdomen finely and rather sparsely punctured, the apical one-third of each segment depressed, segments 2–4 with apical fasciæ of whitish pubescence, interrupted on the second, anal fimbria pale fulvous. Length 8—10 mm.

♂.—Resembles the female; the tarsi, and often the posterior tibiæ, yellowish testaceous. Length 7—8 mm.

Twenty females, eleven males, taken from April 10th to June 4th, on flowers of *Claytonia virginica*, *Cercis canadensis*, *Amelanchier canadensis*, *Zizia aurea*, *Heracleum lanatum*, *Antennaria plantaginifolia* and *Salix cordata*.

Two female specimens have the wings with two submarginal cells. One male is infested by *Stylops*.

A. nubecula Sm.

One female, taken October 9th, on flowers of *Aster*.

COLLETES.

C. spinosa ♀.—Black; head short, broad; clypeus longitudinally striate, strongly punctured; labrum with a small median pit and lateral striæ; flagellum dull testaceous beneath; prothorax with large, strong, conspicuous lateral spines; mesothorax closely and coarsely punctured anteriorly, more sparsely on the disc, anteriorly the pubescence is thick and pale, more posteriorly mixed with black, thin and black on the disc; metathorax with a single series of subquadrate pits on the disc, lateral faces of posterior plate coarsely reticulated; wings hyaline, nervures, stigma and tegulæ dull blackish testaceous; legs slender; abdomen rather closely and finely punctured, sometimes the punctures appear feeble, basal and apical margins of succeeding segments, with fasciæ of white pubescence. Length 10—11 mm.

♂.—Resembles the female, pubescence longer, prothoracic spine variable, less conspicuous than in female, often short, base of second segment not fasciate. Length 8—9 mm.

Five females, fourteen males, taken on flowers of *Solidago canadensis, S. lanceolata* and *Polygonum hydropiper*, August 30th to October 7th.

C. latitarsis ♀.—Black, clothed with whitish pubescence; clypeus bare, or nearly so, strongly punctured, with a median longitudinal depression; labrum with a large central depression, striate on the sides; flagellum testaceous beneath; prothorax with lateral spines evident; mesothorax closely and strongly punctured, clothed with short feathery hairs, which are mostly black on the disc, whiter around the edges; scutellum with a posterior border of black hairs, which are followed behind by white ones; a patch of hairs on the pleura behind the tubercles and a few hairs on the vertex also black; metathorax sharply truncate, with a single transverse series of subquadrate pits on the disc; wings hyaline, faintly clouded beyond the marginal cell, nervures dull testaceous, stigma black, tegulæ black, dull testaceous exteriorly; legs stout, clothed with pale pubescence, mixed with fuscous, especially on the scopæ exteriorly; abdomen densely and finely punctured, especially on the second segment, third segment more finely and sparsely punctured, segments 1-4 with narrow apical fasciæ of white pubescence, fifth not fasciate. Length 11—12 mm.

♂.—Closely resembles the female; labrum usually not so depressed medially, flagellum darker, pubescence longer and paler, punctures a little less dense, anterior femora ciliate with long white pubescence, basal joint of hind tarsi remarkably broad. Length 10—11 mm.

Five females, five males, taken from July 9th to September 20th, on flowers of *Asclepias incarnata, Physalis virginiana* and *Polygonum hydropiper*. It is very abundant on flowers of *Physalis*.

C. Willistoni ♀.—Clypeus rough, with rather sparse, shallow punctures, with a median longitudinal depression; labrum with five deep grooves; flagellum dull testaceous beneath; prothoracic spine evident, sharp; mesothorax closely and strongly punctured, clothed with thin, pale pubescence, which is strongly mixed with blackish on the disc; scutellum with coarse punctures; disc of metathorax with a transverse series of subquadrate pits; lateral faces of posterior

plate not reticulated; wings hyaline, nervures, stigma and tegulæ piceous; legs rather stout, apical joints of tarsi ferruginous; first segment of abdomen closely and rather finely punctured, second with the punctures finer and more dense, depressed at base and apex, third and following segments finely and feebly punctured, especially towards apex, appearing impunctate, apical margins of segments 1-5 with narrow fasciæ of white pubescence. Length 10 mm.

One female, taken June 11th, on flowers of *Physalis*.

Dedicated to Dr. S. W. Williston.

C. heucheræ ♀.—Black, shining; clypeus rough with coarse punctures; labrum smooth, with a faint impression on each side and commonly one in the middle; mandibles rufo-piceous at tips, flagellum black, sometimes dull testaceous beneath; thorax rather finely and closely punctured, sparsely on the disc, clothed with short, thin, pale fulvous pubescence; scutellum shining and impunctate anteriorly, strongly punctured behind, enclosure of metathorax shining, with single transverse series of coarse reticulations, which are sometimes nearly obliterated; sides of posterior face of metathorax sparsely punctured with coarse, shallow punctures; wings hyaline, nervures and stigma dull testaceous, second submarginal cell narrowed one-half to marginal; tegulæ black, punctured; legs slender, black, clothed with pale pubescence, apical joints of tarsi ferruginous, claws equally cleft; abdomen closely and rather finely punctured, base with thin pale pubescence, apical margins of segments 1-5 each with a rather close fascia of white pubescence; segments 2-5 have blackish pubescence on the disc, the sixth with appressed brownish hairs. Length 9-11 mm.

♂.—A little longer, more pubescent, clypeus finely punctured, labrum smooth, or with only a faint median depression; thorax more closely, and abdomen more finely punctured, tarsi paler, abdominal fasciæ thinner, second submarginal cell narrowing more strongly to marginal. Length 10-12 mm.

Thirty-five females, twelve males, taken May 18th and 31st, and June 11th, on flowers of *Heuchera hispida*, *Zizia aurea* and *Polytænia nuttallii*. On the first named plant it is very abundant, being the exclusive pollinator of the flower. The female comes for honey and pollen, the red grains commonly filling her scopæ. The male visits the flower for honey, but is generally seen flying about the flowers in search of the female.

C. eulophi ♀.—Black; clypeus rough, strongly punctured, with a median longitudinal depression; labrum with a small pit on basal middle and one or two faint depressions on each side; flagellum dull ferruginous at tip; prothoracic spine concealed by pubescence; mesothorax closely and rather strongly punctured, except on the disc, which is sparsely punctured, smooth and shining, the thorax above clothed with short, rather thick fulvous pubescence, except on the disc, which is bare; disc of metathorax with a single transverse series of subquadrate pits, lateral faces of posterior plate reticulated with fine lines; wings hyaline, nervures, stigma and tegulæ piceous; legs slender, posterior tarsi dull ferruginous, first segment of abdomen rather sparsely and finely punctured, second more closely and finely punctured, third and following segments with minute, feeble punctures, making them appear almost impunctate; base and

apex of second and apical margins of following segments depressed, base of second and apical margins of 1-5 with narrow fasciæ of white pubescence. Length 11 mm.

♂.—Resembles the female, pubescence longer, dense and yellow on face, base of second segment not fasciate. Length 8—10 mm.

One female, ten males, taken from June 11th to September 20th, on flowers of *Psoralea onobrychis, Pastinaca sativa, Eulophus americanus, Sium cicutæfolium* and *Polygonum hydropiper.*

C. illinoiensis ♀.—Black; clypeus rough, with a median longitudinal depression; labrum bearing a tubercle, with a rounded pit on basal middle and faint depressions on the sides; mandibles black, rufo-piceous at tips; antennæ black, prothoracic spines concealed by pubescence; thorax strongly, densely and evenly punctured, clothed with short, thick fulvous pubescence; metathorax with a transverse series of subquadrate pits on the disc, lateral faces of posterior plate reticulated; wings hyaline, nervures and stigma black, tegulæ dull testaceous; legs slender; abdomen rather sparsely and finely punctured on first and second segments, third and following segments more finely punctured, apical margins of segments depressed and bearing rather narrow fasciæ of white pubescence. Length 10 mm.

One female, taken September 6th, on flowers of *Cnicus discolor.*

C. speciosa ♀.—Black; clypeus finely and closely punctured, clothed with short pale pubescence; labrum with a large median eminence bearing a deep pit, a shallow depression on each side; mandibles rufous; flagellum testaceous beneath; thorax clothed with short, fine, dense, fulvo-ochraceous pubescence concealing the surface, disc of metathorax concealed by pubescence, lateral faces of posterior plate not reticulated; wings hyaline, nervures, stigma and tegulæ pale testaceous; legs slender, clothed with pale pubescence, black, tarsi inclining to dull ferruginous; abdomen opaque, closely and very finely punctured, base of first segment with rather short, pale, fulvous pubescence, segments 1–5 with dense, even, apical fasciæ of appressed yellowish white pubescence, sixth segment with black pubescence. Length 10 mm.

One female, taken August 8th, on flowers of *Eryngium yuccæfolium.*

C. punctata ♂.—Black; labrum with a median groove and a shallow depression on each side, mandibles rufous, flagellum dull ferruginous beneath, the prothorax with a short spine on each side; mesothorax closely and coarsely punctured, disc of metathorax with a series of large pits, lateral faces of posterior plate densely and coarsely punctured; wings fulvo-hyaline, nervures, stigma and tegulæ piceous; legs slender, dull ferruginous, tarsi pale; abdomen shining, all of the segments closely and coarsely punctured, apical margins very strongly depressed, bearing fasciæ of white pubescence. Length 11 mm.

One male, taken July 6th, on flowers of *Petalostemon violaceus.*

C. producta ♀.—Black, clothed with pale pubescence; clypeus closely and strongly punctured, except at apex, which is shining and almost impunctate; labrum smooth, without depressions; mandibles rufous, widely separated; prothoracic spines short, mesothorax smooth

and shining, sparsely and finely punctured, clothed with long, thin, dirty white pubescence; scutellum very coarsely punctured in comparison with mesothorax; metathorax with a single series of subquadrate pits, lateral faces of posterior plate shining, hardly reticulated; wings hyaline, nervures and stigma dull honey-yellow, tegulæ black; legs slender, tarsi dull ferruginous; abdomen shining, sparsely and very finely punctured, more closely on second segment, base of first segment with rather long pale pubescence, apical margins of segments 1-5 with fasciæ of thin whitish pubescence. Length 7 mm.

One male, taken June 21st, on flowers of *Apocynum cannabinum.*

SPHECODES.

S. antennariæ ♀.—Black, clothed with thin pale hairs; head broader than thorax, closely and minutely punctured; mandibles unarmed, honey-yellow, rufous at tips; antennæ dull ferruginous, flagellum paler beneath, mesothorax shining, with a slight greenish reflection, sparsely and finely punctured; disc of metathorax with several elevated longitudinal lines reaching nearly to apex, which, with the posterior face, is smooth and shining; wings hyaline, nervures dull ferruginous, only two submarginal cells, but there is a faint indication of a small second submarginal, tegulæ pale testaceous; legs dull ferruginous, growing paler towadrs the claws; abdomen shining, entirely ferruginous yellow. Length 5 mm.

Two females, taken April 18th, on flowers of *Antennaria plantaginifolia.*

In the left wing of each specimen the first transverso-cubital nervure is represented by a stump of a vein, and specimens may yet be found in which that nervure is entire, making the normal three submarginal cells. I have two specimens of *S. mandibularis* Cress. whose wings show only two submarginal cells. In one the first transverse cubital is represented by stumps, while the other specimen shows no trace of it.

MACROPIS.

M. steironematis ♀.—Coarsely and closely punctured, a raised line from anterior ocellus terminates in a carina between base of antennæ; base of metathorax extending narrowly on hind plate to insertion of abdomen, and truncation of abdomen, smooth, shining and impunctate; hind plate of metathorax sparsely punctured; abdominal segments depressed at base and apex. Black; flagellum dull testaceous beneath; tegulæ piceous; wings somewhat dusky, nervures black; pubescence on face, vertex, cheeks, pleuræ, scutellum, sides of metathorax, femora beneath, base and apical margin of second, apical margins of succeeding, and sides of all segments of abdomen, rather long and white, the pubescence of fifth segment is more abundant and interrupted with blackish in middle; disc of mesothorax with rather thin blackish pubescence; the tibiæ with pale pubescence, most dense and whitest on hind pair; pubescence of tarsi brownish, most dense and blackest on hind pair. Length 9 mm.

♂.--Resembles the female, but is more strongly pubescent, the pubescence of legs more uniformly whitish, the tarsi fulvous beneath; the face below antennæ,

spot on mandibles, and on anterior and middle knees, yellow; flagellum testaceous beneath, anterior tibiæ with more or less of rufous in front. Length 8—9 mm.

Twenty-four males and two female specimens. I have taken it June 21st to 26th, on flowers of *Steironema lanceolatum*, *Apocynum cannabinum* and *Ceanothus americanus*.

The posterior tibiæ of male are unarmed, except a short blunt process between the spurs.

PHILEREMUS.

P. illinoiensis ♀.—Black, closely and strongly punctured; middle of face, cheeks, sides of prothorax, pleuræ, sides of metathorax, two short lines on anterior middle of mesothorax, and line encircling scutellum with short, white, feathery, or scale-like pubescence; head not broader than thorax, clypeus at apex, sometimes, and mandibles ferruginous; antennæ dull ferruginous, flagellum paler beneath; scutellum slightly bilobed; legs inclining to dull ferruginous, especially at the joints, clothed with short pale glittering hairs; wings hyaline, faintly clouded at apex and in marginal cell, nervures fuscous; second submarginal not greatly shorter than first, narrowed about one half towards marginal, receiving the second recurrent nervure near its apex, first submarginal receiving the first recurrent near its apex; tegulæ pale testaceous exteriorly; abdomen fulvo-ferruginous, depressed apical margins of segments golden, sometimes the disc is more or less blackish, densely and confluently punctured, segments 2-4 depressed at base, 1-4 with interrupted basal fasciæ of short white hairs, on first forming rounded patches, segments 2-4 with patches of pubescence on each extreme side of apical margin, fifth segment depressed laterally, elevated on the disc, the elevated portion and the apex clothed with white pubescence. Length 5 mm.

♂.—Resembles the female, antennæ blacker, flagellum paler beneath, apical margins of fifth and sixth segments with fasciæ of white pubescence. Length 4—5 mm.

The segments of the abdomen are commonly ferruginous, with golden apical margins and a little black on the disc. Often the black is wanting. In one male specimen the segments are entirely black, except the golden apical margins.

Three females, nine males, taken August 14th and 23d, on flowers of *Lespedeza procumbens*.

HERIADES.

H. philadelphi ♀.—Black, form slender, closely and finely punctured; head broader than thorax, long; clypeus short, labrum long, somewhat surpassing the open mandibles, its sides parallel, apex three toothed, the middle tooth longer and strongly elevated, mandibles long and narrow; pleura with a little thin, pale pubescence, enclosure of metathorax crescentic, rough; wings hyaline, faintly clouded at apex and in the submarginal cell, stigma black, nervures and tegulæ

piceous; legs black, clothed with thin pale pubescence, apical joints of tarsi testaceous; abdomen slender, sides parallel, fasciæ wanting, a little thin pale pubescence on the sides at apex, ventral scopa white. Length 6—8 mm.

♂.—Resembles the female; the head very much shorter and smaller, as also the mandibles and labrum; antennæ longer, reaching to metathorax, flagellum dull testaceous beneath; seventh segment of abdomen with two long spines in middle and a short blunt one on each side. Length 5—7 mm.

Twenty-seven females, twenty-eight males, taken on May 29th, on flowers of *Philadelphus grandiflorus*.

MEGACHILE.

M. ruflmanus ♀.—Form as in *M. pugnata* and *M. inimica;* head large, long, strongly produced behind eyes, form much as in *M. pugnata*, but without a spine under cheek; clypeus very broadly and deeply emarginate; labrum as long as mandibles, broad and three lobed at apex, strongly produced at tip above into a pyramidal process; mandibles long and very slender, three toothed at tips; mesothorax closely, coarsely and strongly punctured, clothed with short, thin, black pubescence, bearing anteriorly two short lines of white pubescence lying about 1 mm. apart; scutellum more coarsely and sparsely punctured; wings fusco-hyaline, the marginal cell clouded along the costal margin; legs black, slender, tibiæ spined at apex exteriorly; abdomen coarsely and strongly punctured, more closely at base, sides and apex, more sparsely on disc, triangular patch on each side of first segment, apical margins of segments 2-4 and base of sixth with white pubescence, ventral scopa white, except on sixth segment, where it is black. Length 11—13 mm.

♂.—Resembles the female; the head is much smaller, the face closely clothed with white pubescence; the mandibles and labrum are shorter, the latter more rounded at tip and not strongly produced above; the anterior legs simple, the coxæ unarmed; anterior femora and tibiæ rufous in front, the carina of sixth segment emarginate in the middle; wings more hyaline than in female. Length 9—11 mm.

Five females, eleven males, taken from June 26th to July 19th, on flowers of *Psoralea onobrychis*, *Lobelia leptostachys* and *Nepeta cataria*.

XENOGLOSSA.

X. ipomœæ ♀.—Black, the face, vertex, thorax above, and base of first segment of abdomen clothed with bright fulvous pubescence; clypeus thinly clothed with appressed, glittering yellow pubescence, rough, with shallow punctures, apex with a broad shallow emargination on each side: mandibles orange-yellow, black at base and at extreme tip; flagellum dull ferruginous; cheeks and thorax beneath with pale pubescence; thorax above with very dense, bright fulvous pubescence; wings fusco-hyaline, nervures black, tegulæ reddish testaceous; legs black, apical joints of tarsi dull ferruginous, tips of claws black, tooth of hind claw small, short; hairs on front legs paler, on middle and hind pairs more fuscous, scopa thin, with the hairs black at base, pale at tips; abdomen black, opaque, with shallow punctures, first segment at base with pubescence

ke that of thorax, but a little paler, black beyond, second at base with short, dense, grayish pubescence, black beyond, third and fourth black at base, grayish beyond, with pruinous tomentum towards apex, fifth similar, but with long fuscous pubescence towards apex, sixth with fuscous pubescence. Length 13—16 mm.

♂.—Resembles the female; apex of clypeus with the lateral emarginations narrower, deeper and more rounded, making the clypeus three lobed, middle lobe concave above, slightly emarginate at tip; transverse band near apex of clypeus, labrum and base of mandibles pale yellowish; middle of mandibles toothed exteriorly; antennæ reaching to scutellum, flagellum testaceous beneath, black at tip; pubescence of legs pale, hind tarsi slender, front and middle claws nearly equally cleft, hind claw with a short triangular tooth at extreme base; segments 3–6 of abdomen with pruinous tomentum. Length 13—16 mm.

Three females, four males, taken from July 22d to August 20th, on flowers of *Ipomœa pandurata*.

CATALOGUE OF THE DESCRIBED SPECIES OF SOUTH AMERICAN ASILIDÆ.

BY S. W. WILLISTON.

The following preliminary catalogue of the described species of South American Asilidæ is offered in the hope that it may lighten the labors of students of the South American Dipterous fauna. It was originally prepared, two years ago, as a preliminary to the study of a Brazilian collection in this family, and has been recently subjected to a careful revision. It will be strange if, among so many references, some errors, both of omission and commission, are not found. I can only say in extenuation of such, that the entire paper has been repeatedly written and the references as often compared. Schiner's list of specific names of the Asilidæ of the world, which seems to be very complete to 1860, has been of material service, as also Lynch's partial catalogue. The distribution of the genera is chiefly that of Schiner; some few changes have been made in accordance with Lynch's, Osten Sacken's, or my own views. A very few of the less important works have been inaccessible to me, and it is in them that additional references may be found. The references thus taken at second hand will be found preceded by an asterisk. No references later than 1889 are included.

I.—DASYPOGONINÆ.

DASYPOGON.

Sensu latissimo.

aberrans Wiedemann, Dipt. Exot. i, 223; Auss. Zw. Ins. i, 389.—South America.

aurarius Wiedemann, Dipt. Exot. i, 229; Auss. Zw. Ins. i, 410.—Brazil.

caiennensis Fabricius, Mant. Ins. ii, 360 (*Asilus*); Ent. Syst. iv, 386 (id.); Syst. Antl. 162 (*Laphria*); Wiedemann, Dipt. Exot. i, 220; Auss. Ins. i, 383.—Cayenne.

coriaceus Wiedemann, Dipt. Exot. i, 230; Auss. Zw. Ins. i, 411.—Brazil. [*Holocephala?*]

hirtuosus Wiedemann, Dipt. Exot. i, 227; Auss. Zw. Ins. i, 402.—Brazil.

***leptogaster** Perty, Delectus, etc., 130, pl. xxxvi, fig. 2 (*Laphria*); Walker, List, vi, 504.—Bahia.

mundatus Wiedemann, Auss. Zw. Ins. i, 569.—Brazil.

reticulatus Fabricius, Syst. Antl. i, 160 (*Laphria*); Wiedemann, Dipt. Exot. i, 212; Auss. Zw. Ins. i, 378.—South America.

splendens Philippi, Verh. zool.-bot. Gesellsch. xv, 690.—Chili.
testaceus Fabricius, Syst. Anti. i, 167; Wiedemann, Dipt. Exot. i, 222; Aus. Zw. Ins. i, 396; Schiner, Verh. zool.-bot. Gesellsch. xvi, 677.—South America. [*Plesiomma?* Schiner.]

A.—Tibiæ anticæ non calcaratæ.

DASYPOGON.

Sensu latiori.

atratus Philippi, Verh. zool.-bot. Gesellsch. xv, 687.—Chili.
carbonarius Philippi, Verh. zool.-bot. Gesellsch. xv, 687.—Chili.
chilensis Macquart, Dipt. Exot. i, 2, 46; Blanchard, Gay's Hist. fis. y pol. de Chile, vii, 365.—Chili.
dorsalis Macquart, Dipt. Exot. Suppl. iii, 20, pl. i, fig. 12.—Rio Negro.
fasciatus Macquart, Hist. Nat. Dipt. i, 295.—Cayenne.
fenestrata Macquart, Dipt. Exot. i, 2, 58 (*Senobasis*).—Brazil.
fuscipennis Macquart, Hist. Nat. Dipt. i, 294.—Cayenne.
insertus Walker, Dipt. Saund. 94.—Para.
latus Philippi, Verh. zool.-bot. Gesellsch. xv, 686.—Chili.
lugens Philippi, Verh. zool.-bot. Gesellsch. xv, 689.—Chili.
micans Philippi, Verh. zool.-bot. Gesellsch. xv, 690.—Chili.
Phalna Walker, List, etc., ii, 331; vi, 486.—Para.
punctipennis Macquart, Dipt. Exot. i, 2, 46; Blanchard, Gay's Hist. fis. y pol. de Chile, vii, 365.—Chili.
rubiginnipennis Macquart, Dipt. Exot. i, 2, 45.—Brazil.
rufipes Philippi, Verh. zool.-bot. Gesellsch. xv, 691.—Chili.
sericeus Philippi, Verh. zool.-bot. Gesellsch. xv, 691.—Chili.
tripartitus Walker, List, etc., vi, 437.—Brazil.
venustus Philippi, Verh. zool.-bot. Gesellsch. xv, 689.—Chili.

LEPTOGASTER.

Meigen, Illiger's Magaz. 1803; *Gonypes* Latreille, Hist. Nat. Crust. etc., 1804.

Audouinii Macquart, Dipt. Exot. i, 2, 155 (*Gonypes*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 357.—Brazil. [Schiner].
annulipes Walker, List, etc., vii, 772.—Para.
basalis Walker, List, etc., vii, 770.—Amazon.
bicolor Macquart, Dipt. Exot. 3 Suppl. 31, pl. iii, fig. 6 (*Gonypes*).—Rio Negro.
***breviventris** Rondani, Studi Entom. (*Gonypes*).—Brazil.
cingulipes Walker, Trans. Entom. Soc. iv, 130.—Amazon.
***clavistylus** Rondani, Studi Entom. (*Gonypes*).—Brazil.
distincta Schiner, Verh. zool.-bot. Gesellsch. xvii, 357.—Brazil.
ferruginea Walker, List, etc., vii, 771.—Para.
gracillima Walker, List, etc., vii, 771.—Para.
Kamerlocheri Schiner, Verh. zool.-bot. Gesellsch. xvii, 350.—Brazil.
multicincta Walker, Dipt. Saund. 155.—South America.
nigra Wiedemann, Aus. Zw. Ins. i, 533; Schiner, Verh. zol.-bot. Gesellsch. xvi, 694, xvii, 356.—Brazil.
nubeculosa Bigot, Ann. Soc. Ent. France 1878, 445.—Colombia.

rubida Wiedemann, Dipt. Exot. i, 242; Auss. Zw. Ins. i, 533; Schiner, Verh. zool.-bot. Gesellsch. xvi, 694.—South America.

***tenuipes** Loew (Schiner).

***varipes** Loew (Schiner).

vitripennis Schiner, Verh. zool.-bot. Gesellsch. xvii, 358.—Brazil.

LASIOCNEMIS.

Loew, Bemerk. ueber d. Fam. Asil. 1851.

calceolatus Bigot, Ann. Soc. Ent. Fr. 1878, 430.—Amazon.

EUSCELIDEA.

Westwood, Trans. Ent. Soc. London, 1850.

fascipennis Schiner, Verh. zool.-bot. Gesellsch. xvii, 359.—Brazil.

DIOCTRIA.

Meigen, Illiger's Magaz. 1803.

nigrita Fabricius, Syst. Antl. 152; Wiedemann, Dipt. Exot. i, 180; Auss. Zw. Ins. i, 366; Walker, List. etc., vi, 497 (*Discocephala*) —South America.

tenuis Walker, Dipt. Saund., 86.—South America.

vicina Macquart, Dipt. Exot. i, 2, 26; Walker, List, etc., vi, 387.—Brazil.

PLESIOMMA.

Macquart, Dipt. Exot. i, 2, 54, 1838.

cædens Wiedemann, Auss. Zw. Ins. i, 584 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 681.—Brazil.

caminarius Wiedemann, Auss. Zw. Ins. i, 585 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 681.—Brazil.

fuliginosus Wiedemann, Auss. Zw. Ins. i, 380 (*Dasypogon*); Dipt. Exot. i, 218 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 677; Jaennicke, Neue exot. Dipt. 359.—Brazil.

nigra Macquart, Dipt. Exot. i, 2, 55.—Brazil. [Schiner, Jaennicke].

jungens Schiner, Verh. zool.-bot. Gesellsch. xvii, 375.—Brazil.

semirufa Wiedemann, Auss. Zw. Ins. i, 393 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 678; v. d. Wulp, Tijdschr. v. Entom. xxv, 96; E. Lynch A., An. Soc. Ent. Arg. x, sep. 94.—Brazil, Argentina.

DIZONIAS.

Loew, Centur. vii, 53, 1866.

tristis Walker, Dipt. Saund. 93 (*Dasypogon*).—United States, Central and South America.

Dasypogon quadrimaculatus Bellardii, Saggio, ii, 80, pl. i, fig. 8.—Mexico. [Osten Sacken].

Dizonias bicinctus Loew, Centur. vii, 54; v. d. Wulp, Tijdschr. v. Entom. xxv, 96; Osten Sacken, Cat. Dipt. 230; Biol. Centrali-Americana, 169.

PHILAMOSIUS.

Rondani, Prodr. 1856; Dipt. Aliq. Exot. 1863.

ocrealis Rondani, Dipt. Aliq. Exot. Arch. per la Zool. 45, 1863.—Chili.

PROLEPSIS.

Walker, Dipt. Saund. 101, 1851; *Cacodæmon*, Schiner, Verh. zool.-bot. Gesellsch. xvi, 671, 1866.

lucifer Wiedemann, Auss. Zw. Ins. i, 388 (*Dasypogon*); Walker, List, etc., vi. 432 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 672 (*Cacodæmon*); Bigot. Ann. Soc. Ent. Fr. (5), viii, 431 (id.); v. d. Wulp, Tijdschr. v. Entom. xxii. 21 (id.); E. Lynch A., An. Soc. Cient. Arg. viii, 152 (8). xi, 26.—Montevideo, Argentina, Brazil, Uruguay, Buenos Aires.

Dasypogon satanas Wiedemann, Auss. Zw. Ins. i, 401; Loew, Bemerk. Fam. Asil. 13; Walker, List, etc., vi, 441, 442; Schiner, Verh. zool.-bot. Gesellsch. xvi, 702 (*Cacodæmon*); v. d. Wulp, Tijdschr. v. Entom. xxii, 21 (id.).

? *Dasypogon rufipennis* Macquart, Dipt. Exot. i. 2, 45; Walker, List, etc., vi. 438 (E. Lynch A., An. Soc. Cient. Arg. ix, 29).

Prolepsis fumiflamma Walker, Dipt. Saund. 100. pl. iii, fig. 6; List, etc., vi, 437.

crabroniformis Schiner, Verh. zool.-bot. Gesellsch. xvii, 375 (*Cacodæmon*).

quadrinotata Bigot, Ann. Soc. Ent. Fr. 1878, 431 (*Cacodæmon*).—Chili.

TOLMEROLESTES.

E. Lynch A., An. Soc. Cient. Arg. xi, 27 (Asilides Argentinos), 1881.

fax E. Lynch A., An. Soc. Cient. Arg. xi, 30.—Buenos Aires.

Pluto E. Lynch A., An. Soc. Cient. Arg. xi, 112.—Buenos Aires.

rubripes E. Lynch A., An. Soc. Cient. Arg. xi, 114.—San Luis.

CYLICOMERA.

E Lynch A., An. Soc. Cient. Arg. xi, 115, 1881.

fraterna E. Lynch A., An. Soc. Cient. Arg. xi, 117.—Buenos Aires.

rubrofasciata E. Lynch A., An. Soc. Cient. Arg. xi, 119.—Buenos Aires.

MICROSTYLUM.

Macquart, Dipt. Exot. i. 2, 26, 1838.

longipes Macquart, Dipt. Exot. i, 2, 30, pl. ii, fig. 4.—Brazil.

DICRANUS.

Loew, Bemerk. Fam. Asil. 13, 1851; *Macronix* Bigot, Ann. Soc. Ent. Fr. 1857, 549.

longiungulatus Macquart, Dipt. Exot. Suppl. iv, 67, pl. vi, fig. 14 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 676.—Brazil.

rutilus Wiedemann, Dipt. Exot i, 231; Auss. Zw. Ins. i, 370 (*Dasypogon*); *Loew, Bemerk. Fam. Asil.; Schiner, Verh. zool.-bot. Gesellsch. xvi, 676.—Brazil.

Tucma E. Lynch A., An. Soc. Cient. Arg. ix, 26 (9), xi, 124; v. d. Wulp, Tijdschr. v. Entom. xxv, 98.—Argentina.

OBELOPHORUS.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 672, 1866; Novara Exped. 167, 1868.

Landbeckii Philippi, Verh. zool.-bot. Gesellsch. xv, 686, pl. xxv, fig. 24.—Chili.

torobratus Macquart, Dipt. Exot. Suppl. iv, 66, pl. vi, fig. 11 (*Dasypogon*); Blanchard, Gay's Hist. fis. y pol. de Chile, vii, 366 (id.); Schiner, Novara Exped. 168. Chili.

ARCHILESTRIS.

Loew, Berl. Ent. Zeit. xviii, 377, 1874; *Archilestes* Schiner, Verh. zool.-bot. Gesellsch. xvi, 672, 1866 [preoc.]; *Pseudarchilestes* Bigot, Bullet. Soc. Ent. Fr. 1889, p. 183.

captnopterus Wiedemann, Auss. Zw. Ins. i, 376 (*Dasypogon*); Walker, List, etc., vi, 441, 442 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 672, xvii, 377 (*Archilestes*); E. Lynch A., An. Soc. Cient. Arg. 28; Williston, Psyche, 255, 1889.—Montevideo, Brazil.

Dasypogon albitarsis Macquart, Dipt. Exot. Suppl. i, 66, pl. vii, fig. 7; Walker, List, etc., vi, 441, 444; Bigot, Bullet. Soc. Ent. Fr. 1889, 183 (*Pseudarchilestes*). [Schiner].

magnificus Walker, List, etc., vi, 427 (*Dasypogon*); Bellardii, Saggio, 79, pl. i, fig. 19 (*Microstylum*); Schiner, Novara Exped. 168; Osten Sacken, Biol. Centr.-Amer. 169.—Mexico, South America.

DOLICHODES.

Macquart, Dipt. Exot. i, 2, 49, 1838.

ferruginea Macquart, Dipt. Exot. i, 2, 49, pl. iv, fig. 1.—Brazil.

HOLOPOGON.

Loew, Linn. Ent. ii, 473, 1847.

bullatus v d. Wulp, Tijdschr. v. Entom. xxv, 100.—Argentina.

tenerus Bigot, Ann. Soc. Ent. Fr. 1878, 437.—Chili.

HYPENETES.

Loew, Ofvers. af. k. vet. Akad. Forhandl. 1857; Diptf. Südafrikas, 89, 1860; *Clavator* Philippi, Verh. zool.-bot. Gesellsch. xv, 699, 1865.

asiliformis v. d. Wulp, Tijdschr. v. Entom. xxv, 101.—Argentina.

brevicornis Philippi, Verh. zool.-bot. Gesellsch. xv, 700 (*Clavator*).—Chili.

fulvicornis Macquart, Dipt. Exot. Suppl. i, 67, pl. vii, fig. 11 (*Dasypogon*); Schiner, Novara Exped. 159.—Chili, Brazil.

nigribarbis Philippi, Verh., zool.-bot. Gesellsch. xv, 700 (*Clavator*).—Chili.

punctipennis Philippi, Verh. zool.-bot. Gesellsch. xv, 699, pl. xxvi, fig. 31 (*Clavator*); Schiner, Novara Exped. 159.—Chili.

rufescens Philippi, Verh. zool.-bot. Gesellsch. xv, 700 (*Clavator*).—Chili.

rubricornis Philippi, Verh. zool.-bot. Gesellsch. xv, 700 (*Clavator*).—Chili.

DASYCYRTON.

Philippi, Verh. zool.-bot. Gesellsch. xv.

gibbosus Philippi, Verh. zool.-bot. Gesellsch. xv, 701, pl. xxvi, fig. 30.—Chili.

BATHYPOGON.

Loew, Bemerk. u. d. Fam. Asilidæ, 1851.

cinereus Bigot, Ann. Soc. Ent. Fr. 1878, 432.—Colombia.

claripennis Schiner, Novara Exped. 160.—Chili.

hirtipes Macquart, Dipt. Exot. i, 2, 46 (*Dasypogon*); Blanchard, Gay's Hist. Chile, vii, 368 (id.); Philippi, Verh. zool.-bot. Gesellsch. xv, 686 (id.).—Chili. [Schiner].

hirtuosus Schiner, Novara Exped. 160.—Chili.
parvus Bigot, Ann. Soc. Ent. Fr. 1878, 432.—Chili.

DASYPECUS.

Philippi, Verh. zool.-bot. Gesellsch. xv, 692, 1865.

heteroneurus Philippi, Verh. zool.-bot. Gesellsch. xv, 692, pl. xxviii, fig. 24.—Chili.

HOLOCEPHALA.

Jaennicke, Neue Exot. Dipt. 51, Abh. Senckenb. Gesellsch. vii, 359, 1867; *Discocephala* Macquart, Dipt. Exot. i. 2, 50, 1838 [preoc.].

abdominalis Say, J. Acad. Phil. iii, 50; Compl. Wr. ii, 64 (*Dasypogon*); Wiedemann, Auss. Zw. Ins. i, 412 (id).—North America.

Discocephala rufiventris Macquart, Dipt. Exot. i, 2, 50, pl. iv, fig. 2.—Carolina. Brazil.

Dasypogon æta Walker, List, etc., ii, 362.—North America.

Dasypogon laticeps v. d. Wulp, Tijdschr. v. Ent. (2), ii, 137, pl. iii, figs. 10–15.—North America.

alboatra Walker, Dipt. Saund. 100, pl. iii, fig. 8.—Brazil.

analis Macquart, Dipt. Exot. Suppl. i, 68 (*Discocephala*).—Columbia, Africa. [Comp. Loew, Diptf. Südafrikas, p. 96].

apicalis Walker, List, etc., vi, 497 (*Discocephala*) – West coast of America.

***inornata** Rondani, Studi Entom. (*Discocephala*).—Brazil.

***macula** Rondani, Studi Entom. (*Discocephala*).—Brazil.

oculata Fabricius, Syst. Antl. 151 (*Dioctria*); Wiedemann, Dipt. Exot. i, 230 (*Dasypogon*); Auss. Zw. Ins. i, 412 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 681 (*Discocephala*).—Brazil.

Discocephala agulla Walker, List, ii, 361.—Brazil. [Walker, List, vi, 497].

pallata Burmeister, *Reise, etc., ii, 170 (*Holocephala*); E. Lynch A., Asil. Arg. 96.—Tucoman [Nomen nudum].

rufithorax Wiedemann, Auss. Zw. Ins. i, 410 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 680 (*Discocephala*); Walker, List, vi, 496 (id).—Brazil.

scapifer Schiner, Novara Exped. 161 (*Discocephala*).—South America.

uruguayensis E. Lynch A., An. Soc. Cient. Arg. sep.—Uruguay.

DAMALIS.

Fabricius, Syst. Antl. 1805.

pallipes Walker, List, vii, 762.—Brazil.

TRICLIS.

Loew, Bemerk. Fam. Asil. 1851; *Gastrichelius* Rondani, Prodrome, 1856.

bicolor Schiner, Novara Exped. 162.—Chili.

SCYLATICUS.

Loew, Ofvers. af. K. Vet. Akad. Forhandl. 1857, 349; Diptf. Südafrikas, 84, 1860; *Euthrix* Philippi, Verh. zool.-bot. Gesellsch. xv, 690, 1865.

fulvicornis Macquart, Dipt. Exot. Suppl. iv, 68, pl. vi, fig. 12 (*Dasypogon*); Blanchard, Gay's Hist. Chile, vii, 366 (id); Schiner, Novara Exped. 163; Brauer, Syst. Zool. Studien, Sitzenb. d. k. Akad. d. Wissensch. xci 385, sep. 149, pl. figs. 7, 7*a*, 7*b*, 7*c*.—Chili.

nitidigaster Macquart, Dipt. Exot. Suppl. iv, 69 (*Dasypogon*); Blanchard, Gay's Hist. Chile, vii, 367 (id.); Philippi, Verh. zool.-bot. Gesellsch. xv, 686 (id.); Schiner, Novara Exped. 163.—Chili.

Philippii Schiner, Novara Exped. 163.—Chili.

rubripes Bigot, Ann. Soc. Ent. Fr. 1878, 435.—Chili.

tricolor Philippi, Verh. zool.-bot. Gesellsch. xv, 690 (*Dasypogon*).—Chili. [Schiner].

B.—*Tibiæ anticæ calcaratæ.*

THEROMYIA nom. nov.

Cylindrophora Philippi, Verh. zool.-bot. Gesellsch. xv, 704, 1865 (preoc.); *Lynchia* Williston, Psyche 1889, 255; *Myiothera* (id.) ibid. 259 (both preoc.).

breviventris Macquart, Dipt. Exot. Suppl. iii, 21, pl. i, fig. 13 (*Dasypogon*).—Rio Negro.

calopyga Schiner, Novara Exped. 166 (*Cylindrophora*).—Chili.

murina Philippi, Verh. zool.-bot. Gesellsch. xv, 704 (*Cylindrophora*).—Chili.

APHAMARTANIA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 671, 1866.

Frauenfeldi Schiner, Verh. zool.-bot. Gesellsch. xvii, 372.—Venezuela.

LASTAURUS.

Loew, Bemerk. v. d. Fam. Asil. 11, 1851; *Morimna* Walker, Dipt. Saund. 104, '56.

ardens Wiedemann, Auss. Zw. Ins. i, 391 (*Dasypogon*); Walker, List, etc., vi, 441, 446 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi. 678; E. Lynch A., An. Soc. Cient. Arg. viii, 151 (7).—Brazil, Buenos Aires, Misiones.

fallax Macquart, Dipt. Exot. Suppl. i, 63, pl. vii, fig. 5 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 373: Osten Sacken, Biol. Centr.-Amer. 180.—Venezuela, Mexico.

? L. mutabilis Loew, *Bemerk. Fam. Asil. 12. [Schiner].

fenestratus Bigot, Ann. Soc. Ent. Fr. 1878, 424.—Colombia.

lugubris Macquart, Dipt. Exot. Suppl. i, 64 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 373.—Venezuela.

L. anthracinus Loew, *Bemerk. Fam. Asil. 12. [Schiner].

? Dasypogon fallax Macquart, Dipt. Exot. Suppl. i, 63, pl. vii, fig. 5.—Colombia. [Schiner].

mallophoroides Walker, Dipt. Saund. 104, pl. iv, fig. 2 (*Morimna*).—Columbia.

? L. lugubris Macquart. [Schiner, verh.-zool.-bot. Gesellsch. xvii, 574].

transiens Walker, List, ii, 364 (*Dasypogon*); vi, 429 (*Morimna*).—Venezuela.

ALLOPOGON.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 670, 1866.

ferrugineus E. Lynch A., Asilides Arg. 63.—Argentina.

Heydenii Jaennicke, Neue Exot. Dipt. 48, pl. ii, fig. 1 (*Dasypogon*); E. Lynch A., An. Soc. Cient. Arg. ix. 29 (id.); x, 189.—Corrientes.

infumatus E. Lynch A., An. Soc. Cient. Arg. x, 183, 44: xi, 17.—Argentina.

necans Wiedemann, Auss. Zw. Ins. i, 392 (*Dasypogon*); Walker, List, etc., vi, 446 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 678.—Brazil.

tessellatus Wiedemann, Auss. Zw. Ins. i, 390 (*Dasypogon*); **Walker, List, etc.** vi, 447 (id.); Schiner, Verh. zool.-bot. Gesellsch. **xvi, 678**; **E. Lynch A.** An. Soc. Cient. Arg. viii, 147.--Montevideo.

vittatus Wiedemann, Auss. Zw. Ins. i, 389 (*Dasypogon*); **Walker, List, etc.** vi 446 (id.); Schiner. Verh. zool.-bot. Gesellsch. **xvi, 678**; **E. Lynch A.**, An. Soc. Cient. Arg. viii, 146; x, 181 --Montevideo, **Uruguay.**

Dasypogon longiungulatus Macquart, Dipt. Exot. i, 2, 36, **pl. iii, fig. 6**; Walker. List, etc., vi, 436; Bigot, An. Soc. Ent. Fr. 1857, 549 (*Macronix*). [Lynch].

Dasypogon annulitarsis Rondani, Dipt. Aliqua, etc., 9, 24; **E. Lynch A.**, An Soc. Cient. Arg. ix, 20. [Lynch].

Allopogon gracile Bigot, Ann. Soc. Ent. Fr. 1878, 418. **[Lynch].**

CÆNOROLIA.

Thomson, Eugenies Resa, 470, 1868.

longipennis Thomson, Eugenies Resa, 471.--Brazil.

Miles Wiedemann, Auss. Zw. Ins. i, 393 (*Dasypogon*); **Schiner, Verh. zool.-bot.** Gesellsch. xvi, 678 (id.); Thomson, Eugenies, Resa, **471.—Brazil.**

SARAPOGON.

Loew, Linn. Ent. ii, 439, 1847.

argyrocinctus Schiner, Verh. zool.-bot. Gesellsch. **xvii, 370.**

cyanogaster Loew, Bemerk. Fam. Asil.—Chili.

fraternus Bigot, Ann. Soc. Ent. Fr. 1878, 414.--Chili.

Gayi Macquart, Dipt. Exot. i, 2, 37 (*Dasypogon*); Blanchard, **Gay's Hist. Chili.** vii, 365, pl. iii, fig. 1 (id.); Philippi, Verh. zool.-bot. **Gesellsch. xv, 685** (id.).--Chili.

S. chalybeiventris Loew, Bemerk. Fam. Asil.--Chili. [Schiner].

hyacinthus Bigot, Ann. Soc. Ent. Fr. 1878, 413.--Chili.

nigronasutus Bigot, Ann. Soc. Ent. Fr. 1878, 414.--Chili.

pictus Philippi, Verh. zool.-bot. Gesellsch. xv, 681 (*Dasypogon*).—**Chili.**

perniger Schiner, Novara Exped. 166.--Chili.

CYRTOPHRYS.

Loew, Bemerk. Fam. Asil. 1851.

attennatus Loew, Bemerk. Fam. Asil.--Chili.

NEOLAPARUS.

Williston, Psyche, 255, 1889: *Laparus* Loew, Bemerk. Fam. Asil. 1851, **non** Billberg, 1820.

argentinus v. d. Wulp, Tijdschr. v. Ent. xxv, 95 (*Laparus*).--Argentina.

tabidus Loew, Bemerk. Fam. Asil. 4; Diptf. Südafrikas, 67 (*Laparus*). **Cape** of Good Hope? Brazil?

SENOBASIS.

Macquart, Dipt. Exot. i, 2, 52, 1838: *Lochites* Schiner, Verh. zool.-bot. Gesellsch. xvi, 671, 1866: Novara Exped. 163, 1868, non Cabanis, 1859, nec **Foerster**, 1857. [Williston, Psyche, 1889, 255].

analis Macquart, Dipt. Exot. i, 2, 53, pl. v, fig. 1.--Brazil.

apicalis Schiner, Verh. zool.-bot. Gesellsch. xvii, 370 (*Lochites*).—Brazil.
asiloides Bigot, An. Soc. Ent. Fr. 1878, 426 (*Lochites*).—Brazil.
claripennis Schiner, Verh. zool.-bot. Gesellsch. xvii, 369 (*Lochites*).—Brazil.
fenestrata Macquart, Dipt. Exot. i, 2, 53.—Brazil. ["Tibias antorieures sans ergot."]
fulvus Bigot, Ann. Soc. Ent. Fr. 1878, 426 (*Lochites*).—Amazon.
gyrophorus Schiner, Novara Exped. 164, pl. ii, fig. 10 (*Lochites*).—Brazil.
modestus Bigot, Ann. Soc. Ent. Fr. 1878, 427.—Amazon.
nigriventris Bigot, Ann. Soc. Ent. Fr. 1878, 427 (*Lochites*).—Chili.
ornatus Wiedemann, Zool. Mag. iii, 49 (*Laphria*); Dipt. Exot. i, 2, 22 (*Dasypogon*); Auss. Zw. Ins. i, 386, 585 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi. 677 (*Lochites*); xvii, 369 (id.).—Brazil.
staurophorus Schiner, Novara Exped. 165 (*Lochites*).—Colombia.

DEROMYIA.

Philippi, Verh. zool.-bot. Gesellsch. xv, 705, 1865; *Digomites* Loew, Centur. ii, 36, 1866.

atrata Bigot, Ann. Soc. Ent. Fr. 1878, 415 (*Diogmites*).—Brazil.
brunnea Fabricius, Mant. Ins. ii, 359 (*Asilus*); Ent. Syst. iv, 382 (id.); Syst. Antl. 165 (*Dasypogon*); Wiedemann, Dipt. Exot. i, 219 (id.); Auss. zw. Ins. i, 383 (id.); Macquart, Dipt. Exot. i, 2, 34 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 677 (id.); Walker, List, etc., vi, 421 (id.); Bellardi, Saggio, ii, 67 (*Sarapogon*).—Mexico (Bell.), Philadelphia (Macq.), Cayenne.
Duillius Walker, List, ii, 340 (*Dasypogon*); Osten Sacken, Biol. Centr.-Amer. 178 (*Diogmites*).—Honduras, South America.
fascipennis Blanchard, Gay's Hist. fis. y pol. de Chile, vii, 371, pl. i, fig. 6 (*Gonypus*); Philippi, Verh. zool.-bot. Gesellsch. xv, 705.—Chili.
fulvipes Philippi, Verh. zool.-bot. Gesellsch. xv, 706.—Chili.
gracilis Philippi, Verh. zool.-bot. Gesellsch. xv, 706, pl. xxvi, fig. 29.—Chili.
Lindigii Schiner, Novara Exped. 165 (*Dasypogon*); Osten Sacken, Biol. Centr.-Amer. 174 (*Diogmites*).—Panama, South America.
? notata Bigot, Ann. Soc. Ent. Fr. 1878, 416 (*Diogmites*).—Amazon.
placida v. d. Wulp, Tijdschr. v. Ent. xxv, 94.—Argentina.
rufitarsis Bigot, Ann. Soc. Ent. Fr. 1878, 416 (*Diogmites*).—Brazil.
Weyenberghii v. d. Wulp, Tijdschr. v. Ent. xxv, 93.—Argentina.
Winthemi Wiedemann, Dipt. Exot. i, 223; Auss. zw. Ins. i, 387 (*Dasypogon*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 678 (id.); v. d. Wulp, Tijdschr. v. Ent. xxv, 93.—South America.
? Diogmites misellus Loew, Centur.; Williston, Trans. Am. Ent. Soc. xi, 24.—North America.

BLEPHAREPIUM.

Rondani, Studi Entom. i, 89, 1848; *Planetolestes* E. Lynch A., An. Soc. Cient. Arg. xi, 22, 72, 1881.

auricinctum Schiner, Verh. zool.-bot. Gesellsch xvi, 371 (*Senobasis*).—Brazil, Surinam.
coarctatum Perty, *Delectus, etc., 181, pl. xxxvi, fig. 4 (*Laphria*); Walker, List, etc., vi, 504 (*Dasypogon*); E. Lynch A., An. Soc. Cient. Arg. viii, 147 (*Planetolestes*), xi, 24; v. d. Wulp, Tijdschr. v. Ent. xxv, 88.—Brazil, Buenos Aires, Cuba, Mexico.

Dasypogon Bonariensis Macquart, Dipt. Exot. i, 2, 194; **Walker, List** [Lynch].

? Blepharepium luridum Rondani, Studi Entom. 89.

Dasypogon subcontractus Walker, Dipt. Saund. 455.—**Amazon.**

Senobasis annulatus Bigot, La Sagra's Hist. Cuba, 789, pl. xx, fig. 3 Sacken, Bull. Buff. Soc. Nat. Sci. 1874, 184; Cat. Dipt. 72 (*Diogm*

Dasypogon secabilis Walker, Trans. Ent. Soc. (2), v, 276; **Bellardi, Se** 63, pl. i, fig. 4; Schiner, Verh. zool.-bot. Gesellsch. xvi, 701 (*Ses* Osten Sacken, Biol. Centr.-Amer. 171 (*Planetolestes*). **[Lynch].**

PHONICOCLEPTES.

E. Lynch A., An. Soc. Cient. Arg. xi, 18, 1881.

Busiris E. Lynch A., An. Soc. Cient. Arg. xi, 21.—**Buenos Aires.**

DASYPOGON.

Meigen, Class. Beschr. 1804.

Sensu late.

Aedon Walker, List, ii, 343.—Venezuela.

castaneus Macquart, Dipt. Exot. i, 2, 35.—Brazil.

castigans Walker, Dipt. Saund. 89.—South America.

costalis E. Lynch A., An. Soc. Cient. Arg. ix, 29 (12).—**Argentina.**

coffeatus Wiedemann, Zool. Mag. iii, 49; Dipt. Exot. i, 217; **Auss. zw** 374; Schiner, Verh. zool. bot. Gesellsch. xvi, 676.—**Brazil.**

crassitarsis Macquart, Dipt. Exot. i, 2, 33.—Brazil.

equestris Wiedemann, Auss. Ins. i, 392; Schiner, Verh. zool.-bot. Ge xvi, 678.—Brazil.

examinans Walker, Dipt. Saund. 90.—Para.

eburnus Walker, List, iii, 332.—Para.

flavipennis Wiedemann, Auss. zw. Ins. i, 376; Schiner, Verh. zool.-b sellsch. xvi, 676.—Brazil, Colombia.

flavipennis Macquart, Dipt. Exot. Suppl. i, 64, pl. vii, fig. 4.—**Colombia.**

fraternus Macquart, Dipt. Exot. Suppl. i, 63. Brazil.

grandis Macquart, Dipt. Exot. Suppl. i, 63, pl. vi, fig. 8. Brazil.

inclusus Walker, Dipt. Saund. 95. Para.

insertus Walker, Dipt. Saund. 94. South America.

intactus Wiedemann, Auss. Zw. Ins. i, 371; Schiner, Verh. zool.-bot. Ges xvi, 676. South America.

Lebasii Macquart, Dipt. Exot. i, 2, 38. Colombia.

maculipennis Macquart, Dipt. Exot. i, 2, 37, pl. iii, fig. 8.—Brazil.

melaleucus Schiner, Novara Exped. 165. South America.

melanogaster Wiedemann, Dipt. Exot. i, 215; Auss. Zw. Ins. i, 368; **Mac** Hist. Nat. Dipt. i, 294; Dipt. Exot. i, 2, 85; Walker, List, vi, 450; **Sc** Verh. zool.-bot. Gesellsch. xvi, 675. Brazil.

miser Walker, List, vi, 433. Brazil.

princeps Macquart, Dipt. Exot. Suppl. iii, 19, pl. i, fig. 14.—Brazil.

pumilus Macquart, Dipt. Exot. i, 2, 37. Brazil.

rapax Walker, Dipt. Saund. 88. South America.

rufipalpis Macquart, Dipt. Exot. i, 2, 38, pl. iii, fig. 2.—Cayenne?

rufiventris Wiedemann, Dipt. Exot. i, 223; Auss. Zw. Ins. i, 388; **Sch** Verh. zool. bot. Gesell. xvi, 678; Walker, List, vi, 503 "var." .—**I**

II.—LAPHRINÆ.

A.—*Tibiæ anticæ calcaratæ.*

PSEUDORUS.

Walker, Dipt. Saund. 103, 1850.

piceus Walker, Dipt. Saund. 103, pl. iv, fig. 5; Williston, Psyche, 1889, 256.—South America.

DORYCLUS.

Jaennicke, Neue Exot. Dipt. 58; Abhand. Senck. Gesellsch. vi, 366, 1867; *Ampyx* Walker, List. etc., 564, 1855 (preoc.).

distendens Wiedemann, Auss. Zw. Ins. i, 571 (*Asilus*); Jaennicke, Neue Exot. Dipt. 366, pl. xliv. fig. 3; Roeder, Berl. Entom. Zeit. xxxi, 77; Williston, Psyche, 1889, 256.—Brazil, Mexico.

Megapoda crassitarsis Macquart, Dipt. Exot. Suppl. i, 70, pl. vii. fig. 11 (male).—Brazil. [Roeder.]

Megapoda cyaneiventris Macquart, Dipt. Exot. Suppl. i, 71, pl. vii, fig. 12 (female).—Mexico. [Roeder.]

Ampyx varipennis Walker, List, etc., vii, 564; Osten Sacken, Biol. Centr.-Amer. 182 (male).—Brazil, Mexico.

Doryclus latipes v. d. Wulp, Tijdschr. v. Ent. (2) v, 215, pl. ix, figs. 7–12 (female).—Surinam. [Roeder.]

MEGAPODA.

Macquart, Hist. Nat. des. Ins. i, 288, 1834.

Guentherii E. Lynch A., Asil. Arg. 98 (*Doryclus*).—Buenos Aires. [*Doryclus?*]

labiata Fabricius, Syst. Antl. 160 (*Laphria*); Wiedemann, Dipt. Exot. i, 232 (id.); Auss. Zw. Ins. i, 499 (id.); Macquart, Hist. Nat. Dipt. i; Dipt. Exot. i, 2, 59, pl. v, fig. 3; Schiner, Verh. zool.-bot. Gesellsch. xvi, 690; Roeder, Berl. Ent. Zeit. xxxi, 689, 78.—Brazil.

**Dasypogon rufimanus* Perty, Del. Anim. Art. 181, pl. xxxvi, fig. 6. [Walker.]

M. cyanea Macquart, Hist. Nat. Dipt. i, 288.—Brazil.

rufiventris Roeder, Berl. Ent. Zeit. xxxi, 78.—Amazon.

B.—*Tibiæ anticæ non calcaratæ.*

a.—*Venulæ exteriores cellularum discalis et posterioris quartæ conjunctæ et rectæ aut parallelæ.*

EUMECOSOMA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 673, 1866.

dichroma Bigot, Ann. Soc. Ent. Fr. 1878, 236.—Brazil.

metallescens Schiner, Novara Exped. 171.—South America.

pleuritica Wiedemann, Auss. Zw. Ins. i, 527 (*Laphria*); Walker, List, vii, 568 (*Atomosia*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 673, 693.—Brazil.

staurophora Schiner, Novara Exped. 172.—South America.

ATOMOSIA.

Macquart, Dipt. Exot. i, 2, 73, 1838; *Cormansis* Walker, Dipt. Saund. 154, 1851.

affinis Macquart, Dipt. Exot. Suppl. iv, 75.—Brazil.

appendiculata Macquart, Dipt. Exot. Suppl. i, 76, pl. viii, fig. 1.—Cayenne.

ancylocera Schiner, Nov. Exped. 170.—South America. [*Atonia ?*].
annulipes Macquart, Dipt. Exot. i, 2, 74.—Brazil.
argyrophora Schiner, Novara Exped. 169.—Brazil.
Beckeri Jaennicke, Neue Exot. Dipt. 51 (359); E. Lynch A., An. Soc. Cient. Arg. ix, 52, sep. 19.—Mexico, Buenos Aires?
brevicornis Macquart, Dipt. Exot. i, 2, 76.—Brazil.
***cyanescens** Rondani, Studi. Entom.—Brazil.
cyanescens Bigot, Ann. Soc. Ent. Fr. 1878, 235 (*Cormansis*).—Chili.
dispar Walker, List, etc., vii, 570.—Santarem.
geniculata Wiedemann, Auss. Zw. Ins. i, 528 (*Laphria*); Dipt. Exot. i, 241 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 693; Novara Exped. 169; v. d. Wulp, Tijdschr. v. Ent. xxv, 105.—Brazil, Argentina.
limbata Macquart, Hist. Nat. Dipt. i, 287 (*Laphria*).—Cayenne.
limbiventris Thomson, Eugenies Resa, 466.—Montevideo.
modesta Philippi, Verh. zool.-bot. Gesellsch. xv, 685 (*Laphria*).—Chili.
nigripes Macquart, Dipt. Exot. i, 2, 74.—Brazil.
nigroænea Walker, Dipt. Saund. 154.—Columbia.
pilipes Thomson, Eugenies Resa, 465; E. Lynch A., An. Soc. Cient. Arg. ix, 52, sep. 19; v. d. Wulp, Tijdschr. v. Ent. xxv, 105.—Buenos Aires.
tibialis Macquart, Dipt. Exot. Suppl. i, 76; v. d. Wulp, Tijdsch. v. Ent xxv, 105.—Yucatan, Columbia.
unicolor Macquart, Dipt. Exot. i, 2, 74; pl. vii, figs. 2, 3.—Brazil.
venustula E. Lynch A., An. Soc. Cient. Arg. ix, 50, sep. 17; v. d. Wulp, Tijdschr. v. Ent. xxv, 106.—Argentina.
viduata Wiedemann, Zool. Mag. iii, 50; Dipt. Exot. i, 241; Auss. Zw. Ins. i. 528 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 378.—Brazil.
xanthopus Wiedemann, Auss. Zw. Ins. i, 529 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 693; v. d. Wulp, Tijdschr. v. Ent. xxv, 105.—Brazil. Guanaxuata.

RHATHITHOMYIA.

E. Lynch A., Asil. Arg. 104. An. Soc. Cient. Arg. xi, 1881.

nitidula E. Lynch A., Asil. Arg. 106.—Argentina.

APHESTIA.

Schiner, Verh. zol.-bot. Gesellsch. xvi, 673, 1866.

brasiliensis Schiner, Verh. zool.-bot. Gesellsch. xvii, 378.—Brazil.
calceata Schiner, Verh. zool.-bot. Gesellsch. xvii, 379.—Brazil.

ATONIA.

Williston, Psyche, 1889, 257.

? **ancylocera** Schiner, Novara Exped. 170 (*Atomosia*).—South America.

CEROTAINIA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 673, 1866; *Ceratotænia* E. Lynch A., An. Soc. Cient. Arg. ix, 52, sep. 19, 1880.

argyropus Schiner, Novara Exped. 170.—Colombia.
aurata Schiner, Novara Exped. 171.—Colombia.
bella Schiner, Verh. zool.-bot. Gesellsch. xvii, 380.—Brazil.

brasiliensis Schiner, Verh. zool.-bot. Gesellsch. xvii, 379.—Brazil.
propinqua Schiner, Novara Exped. 171.—Colombia
rhopalocera E. Lynch A., An. Soc. Cient. Arg. ix, sep. 101.—Argentina.
violaceithorax E. Lynch A., An. Soc. Cient. Arg. ix, 52, sep. 19.—Buenos Aires.

CYPHOTOMYIA.

Williston, Psyche, 1889, 257.

Lynchii Williston, Psyche, 1889, 258.—Brazil.

LAMPROZONA.

Loew, Bemerk. Fam. Asil. 1851.

auricincta Loew, Bemerk. Fam. Asil. 18; Schiner, Novara Exped. 171.—Chili.
castaneipes Bigot, An. Soc. Ent. Fr. 1878, 234.—Chili.

b.—*Venæ exteriores cellularum discalis et posterioris quartæ nec conjunctæ nec parallelæ.*

DASYLLIS.

Loew, Bemerk. Fam. Asil. 20, 1851.

albicollis Bigot, An. Soc. Ent. Fr. 1878, 229.—South America.
croceiventris Wiedemann, Dipt. Exot. i, 234 (*Laphria*); Auss. Zw. Ins. i, 503 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 691.—Brazil.
fascipennis Macquart, Hist. Nat. Dipt. i, 284 (*Laphria*).—Central America, Cayenne.
Laphria praepotens Macquart, Dipt. Exot. Suppl. i, 74, pl. vii, fig. 17; Schiner, Novara Exped. 172 [Loew, in Osten Sacken, Cat. Dipt. 75.]
hæmorrhoa Wiedemann, Auss. Zw. Ins. ii, 645 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 694.—Bahia.

LAPHRIA.

Meigen, Illiger's Magaz. ii, 1803; *Chaerades* Walker, Dipt. Saund. 109, 1856.

Sensu lat.

albolineata Macquart, Dipt. Exot. Suppl. iv, 74.—Bolivia.
albitibia Macquart, Dipt. Exot. Suppl. iii, 25, pl. ii, fig. 6.—Brazil.
albitibialis Macquart, Dipt. Exot. Suppl. ii, 38.—Brazil. [= *albitibia;* fide Walker, List, etc., vii, 535.]
antica Wiedemann, Auss. Ins. i, 530.—Brazil. [*Atomosia?*]
bimaculata Walker, List, etc., vii, 531, 534, 550.—Amazon.
bipars Walker. [Schiner.]
calogastra Philippi Verh. zool.-bot. Gesellsch. xv, 684.—Chili.
contusa Wiedemann, Auss. Zw. Ins. i, 587.—Brazil.
dasypus Wiedemann, Auss. Zw. Ins. i, 527; Walker, List, vii, 568.—Brazil. [*Atomosia? Atractia?*]
dichroa Wiedemann, Auss. Zw. Ins. i, 526.—Brazil.
dentipes Fabricius. [Schiner.]
laticornis Walker, List, vii, 535.—Para.
melanura Wiedemann, Auss. Zw. Ins. i, 508; Macquart, Dipt. Exot. i, 2, 67; Schiner, Verh. zool.-bot. Gesellsch. xvi, 691.—Brazil.
mellipes Wiedemann, Auss. Zw. Ins. i, 526.—Brazil.

minuta Wiedemann, Auss. Zw. Ins. i, 530.—Brazil. [*Atractia ? Atomosia ?*].

Olbus Walker, List, ii, 375, vii, 530; Macquart, Dipt. Exot. Suppl. v, 53; Schiner, Novara Exped. 173.—Guatemala, Honduras, South America. "Not a *Laphria*," Osten Sacken, Biol. Centr.-Amer. 186.

pilipes Macquart, Hist. Nat. Dipt. i, 282.—Brazil.

proxima Walker, List, vii, 537.—Para.

pusilla Wiedemann, Auss. Zw. Ins. i, 532.—Brazil.

rufipennis Wiedemann, Auss. Zw. Ins. i, 522; Macquart, Dipt. Exot. Suppl. i, 73, iii, 24; Schiner, Verh. zool.-bot. Gesellsch. xvi, 692; xvii, 380.—Cayenne, Brazil.

scoriacea Wiedemann, Auss. Zw. Ins. i, 529.—Brazil. [*Atomosia ? Atractia ?*]

transatlantica Schiner, Novara Exped. 173.—South America.

venezuelensis Macquart, Dipt. Exot. Suppl. i, 74, pl. vii, fig. 15.—Colombia, Venezuela.

violacea Macquart, Dipt. Exot. Suppl. i, 74.—Colombia.

LAMPRIA.

Macquart, Dipt. Exot. i, 2, 60, 1838.

bicolor Wiedemann, Auss. Zw. i, 522 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 692, 709; Williston, Trans. Amer. Ent. Soc. xi, 32.—North America, Brazil. [Schiner.]

bitincta Walker, Trans. Entom. Soc. v, 276.—Amazon.

clavipes Fabricius, Syst. Antl. 162 (*Laphria*); Wiedemann, Dipt. Exot. i, 237 (id.); Auss. Zw. Ins. i, 513 (id.); Schiner, Novara Exped. 174; Verh. zool.-bot. Gesellsch. xvi, 691; Macquart, Dipt. Exot. i, 2, 61, non Suppl. iii, 22; Walker, List, vii, 510; v. d. Wulp, Tijdschr. v. Ent. xxv, 104; Osten Sacken, Biol. Centr.-Amer. 186; non Bellardi, Saggio.—Brazil, Panama.

cilipes Walker, Trans. Entom. Soc. iv, 127.—Amazon.

dives Wiedemann, Auss. Zw. Ins. i, 524 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 692.—Brazil.

fulgida Schiner, Novara Exped. 174.—Brazil.

Macquartii Perty, Delectus (*Laphria*); Walker, List, vii, 511.—Brazil.

parvula Bigot, Ann. Soc. Ent. Fr. 1878, 237.—Brazil.

pusilla Macquart, Dipt. Exot. i, 2, 68 (*Laphria*).—Brazil.

scapularis Bigot, Ann. Soc. Ent. Fr. 1878, 237.—Para.

spinipes Fabricius, Syst. Antl. 162 (*Laphria*); Wiedemann, Dipt. Exot. i, 240 (id.); Auss. Zw. Ins. i, 525 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 692; Osten Sacken, Biol. Centr.-Amer. 187.—Brazil, Central America.

Laphria affinis Fabricius Syst. Antl. 163.

Tolmides Walker, List, ii, 377 (*Laphria*).—South America.

MAIRA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 673, 1866.

splendens Macquart, Hist. Nat. Dipt. i, 286 (*Laphria*); Schiner, Novara Exped. 157.—Surinam.

ANDRENOSOMA.

Rondani, Dipt. Ital. Prodr. i, 160, 1856; *Nusa* Walker, Dipt. Saund. 108, 1854.

Amandus Walker, List, ii, 373 (*Laphria*).—Brazil.

appendiculata Macquart, Dipt. Exot. Suppl. i, 75, pl. vii, fig. 18 (*Laphria*).—Cayenne.

clausicella Macquart, Dipt. Exot. Suppl. iv, 74, pl. vii, fig. 7 (*Laphria*).—Guiana

erythrogaster Wiedemann, Auss. Zw. Ins. i, 523 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 382.—Brazil.

erythropyga Wiedemann, Auss. Zw. Ins. i, 609 (*Laphria*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 691; v. d. Wulp, Tijdschr. v. Ent. xxv, 104,—Brazil.

fulvicauda Say, J. Acad. Phil. iii, 53, pl. vi, Compl. Wr. i, 12 (*Laphria*); Williston, Trans. Amer. Ent. Soc. xi, 33.—North and South America.

Laphria pyrrhacra Wiedemann, Auss. Zw. Ins. i, 517; Schiner, Novara Exped. 175.

laticornis Walker, List, vii, 535 (*Laphria*).—Para.

maculipennis Macquart, Dipt. Exot. Suppl. i, 73, pl. vii, fig. 14 (*Laphria*).—Guiana.

mesoxantha Wiedemann, Auss Zw. Ins. i, 513 (*Laphria*); Macquart, Dipt. Exot. i, 2, 67 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 691.—Brazil.

pygophora Schiner, Novara Exped. 175.—South America.

pyrrhopyga Wiedemann, Auss. Zw. Ins. i, 515 (*Laphria*); Schiner, Verh., zool.-bot. Gesellsch. xvi, 691.—Brazil.

purpurascens Walker, Dipt. Saund. 457 (*Laphria*. —Amazon.

rufiventris Blanchard, Gay, Hist. Nat. y pol. de Chile, vii, 364, pl. i, fig. 5 (*Laphria*); Schiner, Novara Exped. 176.—Chili.

xanthocnema Wiedemann, Auss. Zw. Ins. i. 509 (*Laphria*); Macquart, Dipt. Exot. i, 2, 67 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 691; v. d. Wulp, Tijdschr. v. Ent. xxv, 104.—Brazil, West Indies. [Macquart.]

ASICYA.

E. Lynch A., An. Soc. Cient. Arg. ix, 224, sep. 24, 1880.

fasciata E. Lynch A., An. Soc. Cient. Arg. ix, 227, sep. 27.—Buenos Aires.

DASYTHRIX.

Loew, Bemerk. Fam. Asil. 21, 1851.

heteroneura Macquart, Dipt. Exot. i, 2, 70, pl. vi, fig. 3.—"Arabia? Brazil?"

***inornata** Loew, Bemerk. Fam. Asil.—South America.

leucophsea E. Lynch A., An. Soc. Cient. Arg. ix, 55, sep. 22.—Buenos Aires.

LYCOMYIA.

Bigot, Ann. Soc. Ent. Fr. (3), v, 298, 1857.

Germainii Bigot, Ann. Soc. Ent. Fr. (3), v, 290, pl. vi, fig. 3; Philippi, Verh. zool.-bot. Gesellsch. xv, 694; Schiner, Novara Exped. 169.—Chili.

RHOPALOGASTER.

Macquart, Hist. Nat. Dipt. i, 279, 1834.

longicornis Wiedemann, Auss. Zw. Ins. i, 519 (*Laphria*); Macquart, Hist. Nat. Dipt. i, 279; Dipt. Exot. i, 2, 72; Schiner, Verh. zool.-bot. Gesellsch. xvi, 693.—Brazil.

LAPHYSTIA.

Loew, Linn. Ent. iii, 538, 1847.

columbina Schiner, Novara Exped. 175.—Colombia.

NEOPHONEUS.

Williston, Psyche, 1889, 255; *Phoneus* Macquart, Dipt. Exot. i, 2, 79, 1838 (preoc.-

Servillei Macquart, Dipt. Exot. i, 2, 79, pl. vii, fig. 3.—**Brazil.**

III.—ASILINÆ.

MALLOPHORA.

Macquart, Hist. Nat. Dipt. i, 301, 1834.

affinis Schiner, Novara Exped. 176.—Rio Negro.

albifrons Walker, Zool. iii, App. xcviii.—South America.

***alecto** Rondani, Studi Trugin.—Brazil.

argentipes Macquart, Dipt. Exot. i, 2, 88.—Guinea.

atra Macquart, Hist. Nat. Dipt. i, 302.—Brazil.

auromystacea Macquart, Dipt. Exot. Suppl. v, 55.—South America.

aurotestacea Macquart.

barbipes Wiedemann, Zool. Mag. iii, 48 (*Laphria*); Dipt. Exot. i, 2, 39 (id.; Auss. Zw. Ins. i, 481; Schiner, Verh. zool.-bot. Gesellsch. xvi, 688.—Brazil. [Promachus?]

Belzebul Schiner, Verh. zool.-bot. Gesellsch. xvii, 385.—Brazil.

Bergii E. Lynch A., Asil. Arg. 35.—Uruguay.

Bigotii E. Lynch A., Cat. 146.—Buenos Aires.

M. soccata (Thoms), E. Lynch A., Asil. Arg. 35.

breviventris Macquart, Dipt. Exot. Suppl. iv, 77, pl. viii, fig. 7.—Brazil.

calceata Schiner, Verh. zool.-bot. Gesellsch. xvi, 711.—Brazil. [Nomen nudum?]

calida Fabricius, Ent. Syst. iv, 380 (*Asilus*); Syst. Antl. 159 (*Laphria*); Wiedemann, Dipt. Exot. i, 210 (*Asilus*); Auss. Zw. Ins. i, 482 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 688; xvii, 384.—Brazil, Cayenne.

candens Walker, Dipt. Saund. 117 (*Trupanea*): List, vii, 583.—Para.

ciliata Walker, Dipt. Saund. 112.—? South America.

cinerascens Walker, List, vii, 581.—Para.

cœruleiventris Thomson, Eugenies Resa, 467.—Callao.

contraria Walker, Dipt. Saund. 113.—South America.

cruralis Rondani, Arch. per la zool. etc., 1863, 46.—Guiana.

Mallophora tibialis Macquart, Dipt. Exot. Suppl. i, 77, pl. viii, fig. 3. [Nomen bis lectum.]

fascipennis Macquart, Dipt. Exot. Suppl. iv, 75.—Brazil.

Freycinetii Macquart, Dipt. Exot. i, 2, 85, Suppl. i, 77.—Brazil, Colombia.

geniculata Macquart, Dipt. Exot. i, 2, 87; Schiner, Verh. zool.-bot. Gesellsch. xvii, 384.—South America.

infernalis Wiedemann, Dipt. Exot. i, 202 (*Asilus*); Auss. Zw. Ins. i, 475 (*Asilus*); Perty, Delectus, etc., 181 (id.); Macquart, Hist. Nat. Dipt. i, 301, pl. vii, fig. 7; Schiner, Verh. zool.-bot. Gesellsch. xvi, 687; ? Bellardi, Saggio, ii, 21; ? Osten Sacken, Biol. Centr.-Amer. 189.—Brazil, ? Mexico.

Lampon Walker, List, ii, 388.—Brazil.

laphroides Wiedemann, Auss. Zw. Ins. i, 403 (*Asilus*); Bigot, Ann. Soc. Ent. Fr. 1857, 542 (*Megaphorus*); Williston, Trans. Amer. Ent. Soc. xi, pl. ii, fig. 11, xii, 59. North America.

M. heteroptera Macquart, Dipt. Exot. i, 2, 90, pl. viii, fig. 3; Bigot, Ann. Soc. Ent. Fr. 1857, 542 (*Megaphorus*); Schiner, Verh. zool.-bot. Gesellsch xvii, 387. Brazil.

Leschenaultii Macquart, Dipt. Exot. i, 2, 86.—Lamana.

lugubris E. Lynch A., Asil. Arg. 30.—Misiones.

minos Wiedemann, Auss. Arg. Ins. i, 478 (*Asilus*); v. d. Wulp, Tijdschr. v. Ent. xxv, 106.—Argentina.

nigrifemorata Macquart, Dipt. Exot. i, 2, 90.—"Probablement le Bresil."

nigritarsis Fabricius, Syst. Antl. 168 (*Dasypogon*); Wiedemann, Dipt. Exot. i, 208 (*Asilus*); Auss. Zw. Ins. i. 479 (id.); Macquart, Dipt. Exot. i, 2, 86; v. d. Wulp, Notes from the Leyden Museum, iv, 77; Tijdschr. v. Ent. xxv, 107; Schiner, Verh. zool.-bot. Gesellsch. xvi, 688, xvii, 386.—Brazil, Surinam.

? *M. nigrifemorata* Macquart, [vide supra.]

nigriventris Jaennicke, Neue Exot. Dipt. 53; E. Lynch A., Asil. Arg. 32.—Paraguay.

opposita Walker, Dipt. Saund. 112; Schiner, Verh. zool.-bot. Gesellsch. xvii, 385.—Brazil.

pluto Wiedemann, Auss. Zw. Ins. i, 477 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 688; Novara Exped. 176; v. d. Wulp, Tijdschr. v. Ent. xxv, 106; Osten Sacken, Biol. Centr.-Amer. 190.—Argentina, Guatemala.

purpurea Walker, Zool. viii, App. xcviii (*Trupanea*); List, vii, 584.—Para, Santar.

pusilla Macquart, Dipt. Exot. i, 2, 88.—Brazil.

robusta Wiedemann, Auss. Zw. Ins. i, 478 (*Asilus*); Macquart, Dipt. Exot. Suppl. i, 78; v. d. Wulp, Tijdschr. v. Ent. xxv, 106.—Yucatan, Brazil.

rufipes Macquart, Dipt. Exot. Suppl. iv, 76.—Brazil.

ruficauda Wiedemann, Auss. Zw. Ins. i, 476 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 687; xvii, 386; E. Lynch A., Asil. Arg. 30; v. d. Wulp, Tijdschr. v. Ent. xxv, 106.—Argentina.

M. soccata Thomson, Eugenies Resa, i, 467. [E. Lynch A., Cat. 146 (38).]

rufiventris Macquart, Dipt. Exot. i, 2, 91.—"Patrie inconnue."

scopipeda Rondani, Arch. per la Zool. 1863, 46.—Brazil, Cuba.

Mallophora scopifer Macquart (non Wiedemann), Dipt. Exot. i, 2, 89.

M. Macquartii Loew in Osten Sacken, Cat. Dipt. 78.

scopifer Wiedemann, Auss. Zw. Ins. i, 478 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 688; Novara, Exped. 176.—Colombia.

scopitarsis Rondani, Arch. per la Zool. 1863, 46.—Brazil.

scutellaris E. Lynch A., Asil. Arg. 33.—Misiones.

***semiviolacea** Rondani, Studi Entom.—Brazil.

singularis Macquart, Dipt. Exot. i, 2, 87, pl. viii, fig. 4; Schiner, Verh. zool.-bot. Gesellsch. xvii, 387.—Guaratuba, Brazil.

***socculata** Rondani, Studi Entom.—Brazil.

Sylveirii Macquart, Dipt. Exot. i, 2, 86.—Brazil.

testaceipes Macquart, Dipt. Exot. Suppl. iv, 76.—South America.

testaceitarsis Macquart, Dipt. Exot. Suppl. v, 54.—South America.

tibialis Macquart, Dipt. Exot. i, 2, 85; v. d. Wulp, Tijdschr. v. Ent. xxv, 107.—Brazil, Guiana, Cayenne.

M. fascipennis Macquart, Dipt. Exot. Suppl. iv, 75.—Brazil.

M. fasciata Walker, List, vii, 583; Dipt. Saund. 112. [Walker.]

tisiphones Rondani, Studi Ent. 1848; Arch. per la Zool. 1863, 47.

M. rufipes Macquart, Dipt. Exot. Suppl. iv, 76.—Brazil (nom. preoc.).

tricolor Walker, Zool. viii, App. xcviii.—Para. ["*M. Amphinome* var.?"]

ventralis Macquart, Dipt. Exot. i, 2, 91.—"Patrie inconnue."
xylocopides Walker, Dipt. Saund. 111.—Para.

PROMACHUS.*

Loew, Linn. Ent. iii, 390, 1848; Trupanea Macquart, Dipt. Exot. i, 2, 1838, non Schrank, 1803.

breviuscula Walker, List, vii, 391.—Amazon region.
captans Walker, Dipt. Saund. 117.—South America.
flavifasciatus Macquart, Dipt. Exot. i, 2, 102, pl. ix, fig. 1 (*Trupanea*).—Brazil.
fuscipennis Macquart, Dipt. Exot. Suppl. i, 81 (*Trupanea*); Schiner, Novara Exped. 177; Bellardi, Saggio, ii, 24, pl. ii, fig. 1.—Mexico, South America.
gracilis Macquart, Dipt. Exot. i, 2, 102 (*Trupanea*).—Brazil.
hirtiventris Macquart, Dipt. Exot. Suppl. iv, 79, pl. viii, fig. 1 (*Trupanea*).—South America.
incisuralis Macquart, Dipt. Exot. i, 2, 107, Suppl. i, 80 (*Trupanea*).—Brazil.
mitescens Walker, Dipt. Saund. 118.—South America.
nigripes Macquart, Dipt. Exot. i, 2, 101 (*Trupanea*).—Brazil.
nigripes Fabricius, Ent. Syst. iv, 385 (*Asilus*); Syst. Antl. 171 (*Dasypogon*); Wiedemann, Dipt. Exot. i, 209 (*Asilus*); Auss. Zw. Ins. i, 480 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 688; xvii, 388.—Brazil.
perfecta Walker, Dipt. Saund. 120.—South America.
***purpurea** Walker, Newman. Zool. Append. xcviii (*Trupanea*).—Para.
quatourlineata Macquart, Dipt. Exot. i, 2, 102 (*Trupanea*).—Rio Negro.
substitutus Walker, Dipt. Saund. 119.—South America.
spissibarbis Macquart, Dipt. Exot. Suppl. i, 80 (*Trupanea*).—Chili.
trichonotus Wiedemann, Auss. Zw. Ins. i, 490, 97 (*Asilus*); Loew, Linn. Ent. iii, 407; Schiner, Verh. zool.-bot. Gesellsch. xvi, 689; xvii, 387; v. d. Wulp, Tijdschr. v. Ent. xxv, 108.
Wiedemanni Schiner, Verh. zool.-bot. Gesellsch. xvii, 388.—Brazil.

PROCTOPHORUS.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 674, 1866.

connexus Wiedemann, Auss. Zw. Ins. i, 497 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 689; E. Lynch A., Asil. Arg. 51. Montevideo.
melaleucus Wiedemann, Auss. Ins. i, 498 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 690.
pyrrhomystax Wiedemann, Auss. Zw. Ins. i, 497 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 674, 690; xvii, 391.—Brazil.

ERAX.

Macquart, Dipt. Exot. i, 2, 107, 1838.

abdominalis Wiedemann, Dipt. Exot. i, 185 (*Asilus*); Auss. Zw. Ins. i, 432 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 683.—South America.
aestuans Wiedemann (non Linné), Dipt. Exot. i, 200 (*Asilus*); Auss. Zw. Ins. i, 467 (id.); Macquart, Dipt. Exot. i, 2, 115; Bigot, in La Sagra, Hist. etc., 791; Williston, Trans. Amer. Ent. Soc. xii, 72. North America, Brazil. [Macquart.]

* *Sensu Trupaneæ* Macq., i.e., *Alcima, Philodicus et Promachus*, s. str. *includentur.*

auribarbis Wiedemann, Dipt. Exot. i. 186 (*Asilus*); Auss. Zw. Ins. i, 437 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 683; v. d. Wulp, Tijdschr. v. Ent. xxv, 110.—Bahia.

albescens Schiner, Novara Exped. 180.—Chili.

albispinosus Macquart, Dipt. Exot. Suppl. iv. 84, pl. viii fig. 7.—South America.

Amphissa Walker, List, ii, 406.—Brazil.

annulipes Macquart, Dipt. Exot. Suppl. i. 83, pl. viii. fig. 8; Bigot, Ann. Soc. Ent. Fr. (3), v, 545 (*Pachychæta*).—Brazil.

Bardyllis Walker, List, ii.—Brazil.

Bellardi Schiner, Novara Exped. 182.—South America.

Eristicus nigripes Bellardi, Saggio, i, 48 (preoc.).—Mexico.

bilineatus v. d. Wulp, Tijdschr. v. Ent. xxv, 115.—Argentina.

bimaculatus Bellardi, Saggio, ii, 45, pl. x, fig. 11; Schiner, Novara Exped. 182.—Mexico, Columbia.

cellatus Schiner, Novara Exped. 181.—South America.

chiliensis Macquart, Dipt. Exot. Suppl. iv, 85, pl. viii, fig. 5; Blanchard, Gay's Hist. Chile, vii, 369.- Chili, Bolivia.

cinereus Philippi, Verh. zool.-bot. Gesellsch. xv, 693.—Chili.

commiles Walker, Dipt. Saund. 132.—South America.

copulatus Wiedemann, Zool. Mag. iii, 48; Dipt. Exot. i, 192 (*Asilus*): Auss. Zw. Ins. i, 457 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvii, 394.—Brazil.

costatus Schiner, Novara Exped. 181.—Colombia.

culiciformis Walker, List, vii, 632.—Brazil.

demifasciatus Macquart, Dipt. Exot. Suppl. i, 86.—Guiana.

dilectus Walker, List, vii, 632.—Brazil.

flavianalis Macquart, Dipt. Exot. Suppl. iii, 26, pl. ii, fig. 13; Bigot, Ann. Soc. Ent. Fr. 1855, 543 (*Eichoichemus*).—Brazil.

flavidus Macquart, Dipt. Exot. i. 2, 114; Walker, List, etc., vii, 625, 637; Schiner, Verh. zool.-bot. Gesellsch. xvi, 713; E. Lynch A., An. Soc. Cient. Arg. x, 119 (50).—Uruguay.

flavofasciatus Wiedemann, Auss. Zw. Ins. i, 470 (*Asilus*); Walker, List, ii, 400; v. d Wulp, Tijdschr. v. Ent. xxv, 113.—Brazil, Honduras. [Walker.]

fulvithorax Macquart, Dipt. Exot. i, 2, 113.—Brazil, Guiana.

fuscanipennis Macquart, Dipt. Exot. Suppl. iv, 86.—Guiana.

fuscipennis Macquart, Dipt. Exot. Suppl. ii, 40.—Brazil.

fuscus Wiedemann, Auss. Zw. Ins. i, 465 (*Asilus*); Macquart, Dipt. Exot. i, 2, 112; Schiner, Verh. zool.-bot. Gesellsch. xvi, 686.—Brazil.

griseus Guerin, *Zool. Voy. de la Coquille, ii, 2 (*Asilus*); Blanchard, Gay's Hist. Chile, vii, 369, pl. v, fig. 2; Macquart, Dipt. Exot. i, 2, 115; Philippi, Verh. zool.-bot. Gesellsch. xv, 692; Schiner, Novara Exped. 182.—Chili.

heteropterus Macquart, Dipt. Exot. Suppl. i, 83, pl. viii, fig. 6; Schiner, Novara Exped. 182.—New Granada.

hyalipennis Macquart, Dipt. Exot. i, 2, 114.—Brazil.

hyalinus Macquart.

impendens Wiedemann, Auss. Zw. Ins. i, 587 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 690; Jaennicke, Abh. Senck. Gesellsch. vi, 366 (*Senoprosopis*).

lapidophorus Wiedemann, Auss. Zw. Ins. i, 459 (*Asilus*); Macquart, Dipt. Exot. i, 2, 110; Schiner, Verh. zool.-bot. Gesell. xvi, 686; v. d. Wulp, Tijdschr. v. Ent. xxv, 113.—Brazil.

Lades Walker, List, ii, 403 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvii. 374.—Brazil.

lascivus Wiedemann, Auss. Zw. Ins. i, 474 (*Asilus*); Schiner, Verh. zool.-bot Gesellsch. xvi, 687; xvii, 394.—Brazil.

Asilus amaryncus Walker, List, ii, 400, vii, 637.—Honduras. [Walker, vii. 637.]

leucopygus Wiedemann, Auss. Zw. Ins. i, 586 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 690.—Brazil.

Asilus æstuans Linné. [Schiner.]

longiterebratus Macquart, Dipt. Exot. Suppl. iv, 83, pl. viii, fig. 7; Schiner, Verh. zool.-bot. Gesellsch. xvi, 713; E. Lynch A., An. Soc. Cient. Arg. x. 120.—Argentina.

maculatus Macquart, Dipt. Exot. i, 2, 111, pl. ix, fig. 6; Schiner, Verh. zool.-bot. Gesellsch. xvii, 392; Osten Sacken, Biol. Centr.-Amer. 200.—United States, Mexico, Guatemala, Guadalupe, Columbia, Guiana, Brazil.

E. lateralis Macquart, Dipt. Exot. i, 2, 116; Williston, Trans. Amer. Ent Soc. xii, 70 [Williston.]

E. ambiguus Macquart, Dipt. Exot. Suppl. i, 84. [Osten Sacken.]

Asilus interruptus Macquart, Hist. Nat. Dipt. i, 310. [Osten Sacken.]

E. (*Eristicus*) *villosus* Bellardi, Saggio, etc., ii, 49. [Osten Sacken.]

macularis Wiedemann, Dipt. Exot. i, 193 (*Asilus*); Auss. Zw. Ins. i, 447 (id.) Macquart, Dipt. Exot. i, 2, 147, pl. xii, fig. 5 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 684; Novara Exped. 180; v. d. Wulp, Tijdschr. v Ent. xxv, 112.—Brazil.

medianus Wiedemann, Auss. Zw. Ins. i, 473 (*Asilus*); Schiner, Verh. zool.-bot Gesellsch. xvi, 687.—Brazil.

mellinus Wiedemann, Auss. Zw. Ins. i, 465 (*Asilus*); Walker, List, vi; Schiner Verh. zool.-bot. Gesellsch. xvi, 686; xvii, 393; E. Lynch A., An. Soc Cient. Arg. x, 119 (53).—Montevideo.

minor Macquart, Dipt. Exot. Suppl. ii, 41, pl. i, fig. 8.—Brazil.

murinus Philippi, Verh. zool.-bot. Gesellsch. xv, 694. Chili.

Mygdon Walker, Dipt. Saund. 127.—South America.

nigrinus Wiedemann, Auss. Zw. Ins. i, 462 (*Asilus*); Dipt. Exot. i, 197 (id.) Schiner, Verh. zool.-bot. Gesellsch. xvi, 686.—Brazil.

nigripes Macquart, Dipt. Exot. Suppl. iv, 85, pl. viii, fig. 6.—Bolivia.

notabilis Macquart, Dipt. Exot. i, 2, 110.—America.

obscurus Macquart, Dipt. Exot. i, 2, 112.—Brazil.

Parphorus Walker, Dipt. Saund. 127.—Columbia.

parvus Walker, List, vii 639. Brazil.

patagoniensis Macquart, Dipt. Exot. Suppl. iv, 80; Schiner, Verh. zool.-bot Gesellsch. xvi, 714; E. Lynch A., An. Soc. Cient. Arg. x, 111, 114 (48).—Patagonia, Argentina.

perniger Schiner, Novara Exped. 180.—Chili.

pictipennis Schiner, Novara Exped. 182.—South America.

Potamon Walker, Dipt. Saund. 128. South America.

pumilus Macquart, Dipt. Exot. Suppl. iv, 85, pl. viii, fig. 9.—South America.

pyrrhogonus Wiedemann, Auss. Zw. Ins. i, 472 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 687.—Brazil.

rubidiventris Macquart, Dipt. Exot. Suppl. iv, 84.—Brazil.

rufinus Wiedemann, Zool. Mag. iii, 47 (*Asilus*); Dipt. Exot. i, 189 (id.); Auss. Zw. Ins. i, 441 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 681; xvii, 393; v. d. Wulp, Notes from the Leyden Museum, iv, 78; Tijdschr. v. Ent. xxv, 113.—Brazil.

rufipes Macquart, Dipt. Exot. i, 2, 112.—Rio Janeiro.

rufithorax Macquart, Dipt. Exot. Suppl. i, 82.—Brazil.

rufitibia Macquart, Dipt. Exot. Suppl. iii, 27, pl. ii, fig. 11; Roeder, Stett. Ent. Zeit. 1885, 339.—Rio Negro (Macq.), St. Domingo (Walker), Porto Rico (Roeder).

senilis Wiedemann, Auss. Zw. Ins. i, 471 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 687; Walker, List, ii, 400; E. Lynch A., An. Soc. Cient. Arg. x, 110, 113 (47); v. d. Wulp, Tijdschr. v. Ent. xxv, 115.—Argentina, Montevideo.

Sicyon Walker, List, ii, 399.—Brazil.

simplex Macquart, Dipt. Exot. Suppl. iii, 27, pl. ii, fig. 14; Bigot, An. Soc. Cient. Arg. Ent. Fr. 1857, 545 (*Eicherax*).—Rio Negro.

singularis Macquart, Dipt. Exot. i, 2, 111, pl. ix, fig. 10; Walker, List, vii, 634; Schiner, Verh. zool.-bot. Gesellsch. xvi, 713; E. Lynch A., An. Soc. Cient. Arg. x, 110 (45).—Argentina, Brazil.

Stimicon Walker, Dipt. Saund. 129.—Colombia.

striola Fabricius, Syst. Antl. 172 (*Dasypogon*); Wiedemann, Dipt. Exot. i, 199 (*Asilus*); Auss. Zw. Ins. i, 464 (id.); Schiner, Verh. zool.-bot. Gesellsch. xvi, 686, xvii, 392; Walker, List, vii, 625; Burmeister, Reise, etc., ii, 171 (*Eristicus*); E. Lynch A., An. Soc. Cient. Arg. x, 111, 117 (51).—Brazil, Argentina.

stylatus Fabricius, Syst. Ent. iv, 795 (*Asilus*); Ent. Syst. iv, 384 (id.); Syst. Antl. 171 (*Dasypogon*); Wiedemann, Dipt. Exot. i, 198 (*Asilus*); Auss. Zw. Ins. i, 465 (id.); v. d. Wulp, Tijdschr. v. Ent. xxv, 112; Schiner, Verh. zool.-bot. Gesellsch. xvi, 686.—Rio Janeiro, Wisconsin. [Wulp.]

subappendiculatus Macquart, Dipt. Exot i, 2, 114.—Brazil.

tibialis Macquart, Dipt. Exot. i, 2, 118.—Cayenne, St. Domingo, Pennsylvania.

vicinus Macquart, Dipt. Exot. Suppl. i, 85; Schiner, Novara Exped. 183.—South America, Texas.

virillis Wiedemann, Auss. Zw. Ins. i, 468 (*Asilus*); Macquart, Dipt. Exot. i, 2, 113; Schiner, Verh. zool.-bot. Gesellsch. xvi, 687.—Brazil.

velox Wiedemann, Auss. Zw. Ins. i, 468 (*Asilus*).—Pernambuco.

Zellerstedtii Jaennicke, Neue Exot. Dipt. 49 (362).—Venezuela.

PEDIOPHONEUS.

E. Lynch A., An. Soc. Cient. Arg. xv, 87, 1883.

(No species described or referred to the genus.)

PROCTACANTHUS.

Macquart, Dipt. Exot. i, 2, 120, 1838.

Acanthodelphia Bigot, An. Soc. Ent. Fr. (3) v, 545, 1857.

Antidomus Walker, List, ii, 408.—Brazil.

aurolineatus Macquart, Dipt. Exot. Suppl. i, 86, pl. viii, fig. 9.—New Granada.

basifascia Walker, List, vii, 654.—Brazil.

brevipennis Wiedemann, Auss. Zw. Ins. i, 431 (*Asilus*); v. d. Wulp, Tijdschr. v. Ent. xxv, 108.—United States, ? Argentina. [Wulp.]

brevistylatus v. d. Wulp, Tijdschr. v. Ent. xxv, 111.—Argentina.
Coprates Walker, List, ii, 409.—Brazil.
cruentus E. Lynch A., An. Soc. Cient. Arg. ix, 264, sep. 42.—Misiones.
Daraps Walker, List, ii, 416 (*Asilus*); vii, 653.--Brazil.
flavipennis Macquart, Dipt. Exot. Suppl. i, 85.--Columbia.
Hagno Walker, List, ii, 417 (*Asilus*); vii, 653.--Brazil.
longus Wiedemann, Dipt Exot. i, 183 (*Asilus*); Auss. Zw. Ins. i, 426 (id.); Macquart, Dipt. Exot. i, 2, 123; Walker, List, vii, 648; Schiner, Verh. zool.-bot. Gesellsch. xvii, 396.--North America, Brazil. [Macquart.]
leucopogon Wiedemann, Auss. Zw. Ins. i, 430 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 683; xvii, 395; E. Lynch A., Asil. Arg. 39.—Montevideo.
macrotelus Walker, Trans. Linn. Soc. xvii, 340 (*Asilus*); List, ii, 420 (id.); vii, 653; Schiner, Verh. zool.-bot. Gesellsch. xvi, 714; E. Lynch A., An. Soc. Cient. Arg. ix, 260 (39).—Uruguay.
mystaceus Macquart, Dipt. Exot. Suppl. i, 86.--New Granada.
rubricornis Macquart, Dipt. Exot. i, 2, 122.--Brazil.
rubriventris Macquart, Dipt. Exot. Suppl. iv, 87, pl. viii, fig. 3; Schiner, Verh. zool.-bot. Gesellsch. xvi, 714; E. Lynch A., An. Soc. Cient. Arg. ix, 259, sep. 37.—Brazil, Chili, Argentina, Buenos Aires, Montevideo.
Asilus (*Proctacanthus*) *xanthopogon* Burmeister, *Reise, etc., i, 317, ii, 171. [Lynch.]
Erax speciosus Philippi, Verh. zool.-bot. Gesellsch. xv, 693, pl. xxvi, fig. 28.--Chili. [Lynch.]
senectus v. d. Wulp, Tijdschr. v. Ent. xxv, 110.—Argentina.
tibialis Macquart, Dipt. Exot. Suppl. iv, 88.--South America.
xanthopterus Wiedemann, Auss. Zw. Ins. i, 427 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 682.—Brazil.
vetustus Walker, Trans. Linn. Soc. xvii, 340 (*Asilus*); List, ii, 420 (id.); vii, 653; Schiner, Verh. zool.-bot. Gesellsch. xvi, 714; E. Lynch A., An. Soc. Cient. Arg. ix, 260 (38).—Uruguay.
vittatus E. Lynch A., An. Soc. Cient. Arg. ix, 261, sep. 39.—Misiones.

ECCRITOSIA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 674.

barbatus Fabricius, Entom. Syst. iv, 379 (*Asilus*); Syst. Antl. 155 (id.); Wiedemann, Dipt. Exot. i, 187 (id.); Auss. Zw. Ins. i, 439 (id.); Macquart, Dipt. Exot. i, 2, 122 (*Proctacanthus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 684; v. d. Wulp, Tijdschr. v. Ent. xxv, 112.—Guiana, Cayenne, Brazil.

THRENIA.

Schiner, Verh zool.-bot. Gesellsch. xvi, 674, 1866.

carbonaria Wiedemann, Auss. Zw. Ins. i, 454 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi, 685; Novara Exped. 184, pl. ii, fig. 11.—Brazil.
longipennis Schiner, Novara Exped. 185.--South America.
lugens Schiner, Novara Exped. 185.—South America.

ANARMOSTUS.

Loew, Diptf. Südafrikas, 142, 1860.

lopterus Wiedemann, Auss. Zw. Ins. i, 438 (*Asilus*); Loew, Diptf. Südafrikas, 142; Schiner. Verh. zool.-bot. Gesellsch. xvi, 684; Osten Sacken, Biologia Centr.-Amer. 211.—Brazil, Honduras.

LOPHONOTUS.

Macquart, Dipt. Exot. i. 2, 125, 1838.

americanus Macquart, Dipt. Exot. Suppl. i, 87.—Brazil. [*Dysmachus?*]

DYSMACHUS.

Loew, Diptf. Südafrikas, 143. 1860.

Gayi Macquart, Dipt. Exot. i, 2, 148 (*Asilus*); Suppl. iv, 95; Blanchard, Gay's Hist. Chile. vii, 270, pl. ii, fig. 12 (id.); Philippi, xv, 695 (id.).—Chili.

GLAPHYROPYGA.

Schiner, Verh. zool.-bot. Gesellsch. xvi, 674, 1866.

himantocerus Wiedemann, Auss. Zw. Ins. i, 447 (*Asilus*); Schiner, verh. zool.-bot. Gesellsch. xvi.—Brazil.

SENOPROSOPIS.

Macquart, Hist. Nat. Dipt. 1834; Dipt. Exot. i, 2, 130, 1838.

Brasiliensis Schiner, Verh. zool.-bot. Gesellsch. xvii, 404.—Brazil.
tenuis Wiedemann, Auss. Zw. Ins. i, 448 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvi.—Brazil.
varipes Schiner, Verh. zool.-bot. Gesellsch. xvii, 405.—Brazil.

LECANIA.

Macquart, Dipt. Exot. i, 2, 131, 1838.

femorata Macquart, Dipt. Exot. i, 2, 132.—"Patrie inconnue."
rufipes Macquart, Dipt. Exot. i, 2, 130, pl. xi, fig. 2; Walker, List, vii, 761.—Brazil.

EPITRIPTUS.

Loew, Linn. Ent. iv, 108, 1849.

albisetosus v. d. Wulp, Tijdschr. v. Ent. xxv, 116.—Argentina.

ATRACTIA.

Macquart, Dipt. Exot. i, 2, 151, 1838.

coronata Schiner, Verh. zool.-bot. Gesellsch. xvii. 412.—Brazil.
psilogaster Wiedemann, Auss. Zw. Ins. i, 456 (*Asilus*); Schiner, Verh. zool.-bot. Gesellsch. xvii, 412; Macquart, Dipt. Exot. i, 2, 152.—Brazil.
pulverulenta Schiner, Verh. zool.-bot. Gesellsch. xvii. 412.—Brazil.

HELIGMONEURA.

Bigot, Thoms. Arc. Ent. ii, 352, 1858; *Moctherus* Loew, Linn. Ent. iv, 58, 1849 (preoc.); *Neomoctherus* Osten Sacken, Cat. N. A. Dipt. 82, 1878.

rufipalpis Macquart, Dipt. Exot. i, 2, 146 (*Asilus*); Walker, List, vii, 705; E. Lynch A., An. Soc. Cient. Arg. x, 174, sep. 56 (*Moctherus*).—Uruguay, Montevideo, Buenos Aires, Brazil.

LEPTOHARPACTICUS.

E. Lynch A., An. Soc. Cient. Arg. x. 175, sep. 59, 1880.

Mucius Walker, List. ii. 463, vii. 707. *Asilus* : E. Lynch A., An. Soc. Cient. Arg. x. 180, sep. 61.—Montevideo.

OMMATIUS.

Wiedemann, Auss. Zw. Ins. i. 418, 1828.

apicalis Schiner, Novara Exped. 194.—South America.
erythropus Schiner, Verh. zool.-bot. Gesellsch. xvii. 411.—South America.
holosericeus Schiner, Verh. zool.-bot. Gesellsch. xvii. 411.—Brazil.
marginellus Fabricius, Spec. Ins. ii. 464. *Asilus* : Ent. Syst. iv. 384 (id.); Syst. Antl. 170. *Dasypogon* : Wiedemann, Dipt. Exot. i. 213; Auss. Zw. Ins. i. 431; Macquart, Hist. Nat. Dipt. i. 314; Dipt. Exot. i. 2. 134, pl. xi. fig. 4.—Brazil, Porto Rico. [Roeder, Stett. Ent. Zeit. 1885, 339.]
rufipes Macquart, Dipt. Exot. Suppl. i. 98.—Colombia.
scopifer Schiner, Novara Exped. 194.—Colombia.

ASILUS.

Linné, Fauna Suec. 308, 1746.

albipilosus Macquart, Dipt. Exot. Suppl. i. 92.—Brazil, Bogotia.
annularis Fabricius, Syst. Antl. 171. *Dasypogon* : Wiedemann, Dipt. Exot. i. 211; Auss. Zw. Ins. i. 491.—South America.
Antiphus Walker, List. ii. 443.—Brazil.
brachypterus Philippi, Verh. zool.-bot. Gesellsch. xv. 698.—Chili.
Baletus Walker, List. ii. 427.—Venezuela.
Calatinus Walker, List. ii. 436.—Brazil.
clavatus Macquart, Dipt. Exot. i. 2. 147, pl. xii. fig. 3.—Brazil.
coeruleiventris Macquart, Dipt. Exot. Suppl. i. 93.—Colombia.
Columbiae Macquart, Dipt. Exot. i. 2. 148.—Columbia.
Ctesicles Walker, Dipt. Saund. 149.—South America.
cuyanus (*Entolmus*) E. Lynch A., An. Soc. Cient. Arg. x. 175.—Mendoza.
eritrichus Philippi, Verh. zool.-bot. Gesellsch. xv. 698.—Chili.
eurylabis Wiedemann, Auss. Zw. Ins. i. 469.—Brazil. [*Erax?*]
Eupator Walker, Dipt. Saund. 147.—Brazil.
Gavius Walker, Dipt. Saund. 151.—Brazil.
Gerion Walker, List. ii. 433.—Brazil.
Gamaxus Walker, Dipt. Saund. 142.—Colombia.
Hebes Walker, List. vii. 704.—Brazil.
Herdonius Walker, Dipt. Saund. 140.—South America.
Hilarii Macquart, Dipt. Exot. i. 2. 147.—Brazil.
Haydenii Wiedemann, Auss. Zw. Ins. i. 490.—Brazil.
imitator E. Lynch A., An. Soc. Cient. Arg. xvi. 79.—Argentina. ["Genus novum?"]
incomptus Philippi, Verh. zool.-bot. Gesellsch. xv. 697.—Chili.
Lebasii Macquart, Dipt. Exot. i. 2. 148; Suppl. i. 93.—Colombia.
Leonides Walker, Dipt. Saund. 150.—Rio de Janeiro.
longiusculus Walker, List. vii. 706.—Brazil.
luctuosus Macquart, Dipt. Exot. i. 2. 146.—Brazil.
lutipes Wiedemann, Auss. Zw. Ins. i. 454.—Brazil.
Lycurius Walker, Dipt. Saund. 143.—South America.

meastylus Philippi, Verh. zool.-bot. Gesellsch. xv, 697.—Chili.
melanacrus Wiedemann, Auss. Zw. Ins. i, 472.—Brazil.
mellipes Wiedemann, Auss. Zw. Ins. i. 452.—Brazil.
mucidus Walker, Tr. Linn. Soc. xvii, 340.—Patagonia.
nigrinus Macquart, Dipt. Exot. Suppl. iii, 30, pl. iii, fig. 5.—Brazil.
nigriventris Philippi, Verh. zool.-bot. Gesellsch. xv, 696.—Chili.
nodicornis Wiedemann, Auss. Zw. Ins. i, 469; Bigot, An. Soc. Ent. Fr. (3) v, 532, 543 (*Cerozodus*).—Brazil. [*Erax?*]
occidentalis Philippi, Verh. zool.-bot. Gesellsch. xv, 696.—Chili.
Peticus Walker, List, ii, 434.—Brazil.
pœcilopus Philippi, Verh. zool.-bot. Gesellsch. xv, 697.—Chili.
sericans Walker, Trans. Entom. Soc. iv, 129.—Amazon.
Servillea Macquart, Hist. Nat. Dipt. i, 313.—Brazil.
sexmaculatus Walker, List, vii, 707.—Brazil.
Saulcyi Macquart, Dipt. Exot. i, 2, 150.—San Lorenzo Isles.
spectabilis Philippi, Verh. zool.-bot. Gesellsch. xv, 695.—Chili.
Tatius Walker, Dipt. Saund. 148.—Colombia.
tenuiventris Macquart, Dipt. Exot. Suppl. v, 66.—South America.
Therimachus Walker, Dipt. Saund. 137.—Brazil.
tristis Wiedemann, Auss. Zw. Ins. i, 470.—Brazil. [*Erax?*]
valdivianus Philippi, Verh. zool.-bot. Gesellsch. xv, 696.—Chili.
consanguineus Macquart, Dipt. Exot. Suppl. i, 93.—Cayenne.

Acanthodelphia, see **Proctacanthus**.
Alcima, see **Promachus**.
Archilestes, see **Archilestris**.
Ampyx, see **Doryclus**.
Cacodæmon, see **Prolepsis**.
Ceratotænia, see **Cerotainia**.
Chærades, see **Laphria**.
Clavator, see **Hypenetes**.
Cormansis, see **Atomosia**.
Cylindrophora, see **Theromyia**.
Discocephala, see **Holocephala**.
Diogmites, see **Deromyia**.
Euthrix, see **Scylaticus**.
Gastrichelius, see **Triclis**.
Gonypes, see **Leptogaster**.
Laparus, see **Neolaparus**.
Lochites, see **Senobasis**.
Lynchia, see **Theromyia**.
Macronyx, see **Dicranus**.
Moctherus, see **Heligmoneura**.
Morimna, see **Listaurus**.
Neomoctherus, see **Heligmoneura**.
Phoneus, see **Neophoneus**.
Planetolestes, see **Blepharepium**.
Pseudarchilestes, see **Archilestris**.
Trupanea, see **Promachus**.

A GENERIC SYNOPSIS OF THE COCCIDÆ.

BY WILLIAM H. ASHMEAD.

Family X.—COCCIDÆ.

Soft bodied insects of the smallest size. The females and the young larvæ, of both sexes, are degraded, mite-like in appearance, oval or elliptical in shape, with the head not distinctly separable from the thoracic segment, appearing merely as a segment with rounded eyes placed toward the sides, the short, subsetaceous, 5- to 11-jointed antennæ being situated just a little in advance. Ocelli usually present. Beak usually 1-jointed, and seldom with more than 2 joints, enclosing 4 long, delicate setæ. Legs usually short; tarsi 1-jointed and usually with digitules. The adult males, in this anomalous family, present a very different appearance from the females and young larvæ; they are elongate ovate, with a well developed thorax, a large scutellum, a distinct, small, rounded or quadrately shaped head, with the eyes quite large, either smooth or facetted, while the antennæ are long, filiform, and composed of from 9 to 11 joints, usually pubescent, but occasionally with whorls of hairs. The beak, in this sex, is wanting: where it should be, are two large, shining ocelli. The legs are of moderate length, never greatly thickened; the tibiæ sometimes as thick, or thicker than the femora; tarsi 1-jointed, stout, ending in a single claw, and usually furnished with knobbed digitules. Most of the males known in this family have two wings, the venation consisting of a single longitudinal vein with a simple, oblique, discoidal branch, the hind wings being aborted, and in their place is a pair of halters, as in the Diptera. Some few males in the genus *Lecanium* have been discovered recently to be entirely wingless, and it is quite probable that with closer study wingless males in other genera will be found. Subapterous males are not uncommon. The abdomen in the male is simple, or terminates in two long caudal setæ, a brush of filamentous down, or then armed with a long stylus, with or without caudal setæ.

The habits of this anomalous family are quite interesting; the vast majority of the species becoming quiescent and stationary upon their food-plants, cover themselves with a waxy or calcareous substance, which, together with their castings or moults, affords a protection for their soft bodies, termed a scale, shield, test, sac or envenope. The name, therefore, popularly given to them—"Scale insect"—is very appropriate, although some of them do not become

quiescent and form the scaly covering, but are capable of moving freely about on their food-plant, entirely unprotected, or then only covered with a filamentous, flocculent or pulverulent substance, whilst a few species have been discovered in Australia living in galls or excrescences, on the leaves of the Eucalyptus tree. I also know of a gall-making species in Florida.

The family may be divided conveniently into five subfamilies, apparently natural groups, based upon the studies of Signoret, Targione, Löw, Maskell, Comstock, Atkinson and others, recognizable by the aid of the following table:

Table of Subfamilies.

Species not living in tubes or galls, naked, or covered with a waxy, calcareous, or cottony secretion.

Lower lip 2- or 3-jointed; anal extremity not, or but slightly cleft, tubercular; no lobes or plates.

Adult ♀ with 10–11-jointed antennæ; ♂ with 10-jointed antennæ; eyes facetted; ocelli absent; abdomen never terminating in two long caudal filaments.....Subfamily I.—MONOPHLEBINÆ.

Adult ♀ with 8–9-jointed antennæ; ♂ with 10-jointed antennæ; ocelli present; eyes usually smooth: abdomen always with two long caudal filaments .....Subfamily II.—COCCINÆ.

Lower lip 1-jointed; anal extremity distinctly cleft, or tubercular.

Anal extremity cleft with two triangular lobes or plates above; adult ♂ with 9–10-jointed antennæ; abdomen terminating in a long caudal stylus and two long caudal filaments.....Subfamily III.—LECANIINÆ.

Anal extremity not, or but slightly cleft, strongly tuberculous, no plates above; ♂ with 10-jointed antennæ; abdomen terminating in a caudal stylus, but the caudal filaments absent.....Subfamily IV.—DIASPINÆ.

Species living in tubes or galls, apodous, or with atrophied legs.

Subfamily V.—BRACHYSCELINÆ.

Subfamily I.—MONOPHLEBINÆ.

Table of Genera.

Females.

1. Antennæ in adult 11-jointed.....2.

Antennæ in adult 10-jointed, second and tenth joints of equal length and longest; body normally covered with numerous yellow hairs mingled with a white calcareous, lamellar secretion; skin with rows of spinnerets; claws stout, with a hair on each face; tarsi one-third as long as tibiæ, the latter longer than the femora; at the anal extremity of the abdomen, before the margin, the genital ring is surrounded by a mass of hairs.....G. 1. **Walkeriana** Signoret.

2. With a rostrum.....3.

Without a rostrum.

Anal tubercles wanting or obsolete; claws with numerous knobbed digitules. G. 2. **Cœlostoma** Maskell.

Anal tubercles present.....G. 3. **Porphyrophora** Brandt.

3.—Feet with knobbed digitules.....4

Feet without knobbed digitules.

Species covered with a cottony secretion.

Antennæ pyriform, with two knobbed hairs on last joint; body with very long pubescence .....G. 4. **Guerinia** Sig.

Antennæ conical-moniliform, with short pubescence.

Abdomen with appendages more or less large and fringed; larva with 7-jointed antennæ, the third and seventh joints long.

G. 5. **Monophlebus** Leach.

Abdomen with rotund spinnerets mingled with some hairs and clear translucent spots; larva with (?) 6-jointed antennæ.

G. 6. **Ortonia** Sig.

Species covered with a white secretion.

Antennæ very long; eyes reticulated; anal ring simple, without hairs.

G. 7. **Leachia** Sig.

4.—Feet with horn-shaped digitules, two on the tarsus and two on the claw. Genital apparatus ending in a tube, externally with a reticulated ring like a sphincter, and with hairs at its extremity.

G. 8. **Icerya** Sig.

Males.

Feet with numerous knobbed digitules; halters with four terminal setæ.

G. 2. **Cœlostoma** Maskell.

Feet without knobbed digitules, only simple hairs.

Abdomen with rounded, tubercles, hairy appendages; genital organ not long.....2

Abdomen slightly lobed at sides; genital organ very long, twisted; legs long, tarsi one-third shorter than tibiæ with a small supplementary articulation at tip, a single claw with a hair on the inner and outer face; antennæ 10-jointed, the joints gradually increasing in length apically; eyes facetted.

G. 3. **Porphyrophora** Brandt.

2.—Abdominal tubercular appendages with three long hairs; antennal joints 3-10 nearly of equal length, each with two whorls of hairs.

G. 5. **Monophlebus** Leach.

Abdominal tubercular appendages with four long hairs....G. 8. **Icerya** Sig.

Abdomen without appendages; antennal joints 3-10 nearly of equal length, with two nodosities and two whorls of hairs on each joint.

G. 7. **Leachia** Sig.

Subfamily II.—Coccinæ.

Table of Tribes.

Species not enclosed in a hard, calcareous substance, oval, not quiescent, but moving freely about, naked or covered with a cottony or flocculent substance, some transforming to the adult state in waxy sacs or envelopes; young larva in ♀ with 6-jointed antennæ, in ♂ 5-7 joints; in adult ♀ 7, 8 or 9 joints, in ♂ 9- or 10-jointed.

Species in which the adult ♀ has 7, 8 or 9-jointed antennæ; in ♂ 10-jointed with ocelli.

Elongate forms, more or less pubescent, young larva with 6–7 jointed antennæ: adult ♂ with an indistinct prothorax.

Tribe I.—**Acanthococcini.**

Oval or broadly oval forms naked or covered with a cottony matter; tarsi and claws with or without digitules: extremity of abdomen with 2–4 filamentary processes; adult ♂ with a distinct lobed prothorax.

Tribe II.—**Dactylopiini.**

Species in which the adult ♀ has 7-jointed antennæ, larva with but 6 joints · ♂ adult 10-jointed without ocelli (?) larva with 5 joints.

Tribe III.—**Coccini.**

Species enclosed in a hard, calcareous substance, of a more or less globular shape, quiescent and stationary, young larva with 6–7-jointed antennæ: in adult ♀ 7–8, in ♂ 10-jointed; lateral lobes strongly spined, or with long hairs; ♂ enclosed in a felted sac.

Tribe IV.—**Kermesini.**

Tribe I.—*Acanthococcini.*

Table of Genera.

Females.

Adult with legs and antennæ.....3.

Adult without legs and usually without antennæ.

Rostrum not arising from a curious tubercle, or protuberance on the head..2.

Rostrum arising from a curious tubercle, or protuberance on the head.

Body resting on a cottony mass, which extends beyond and covers its margins; larva with 6-jointed antennæ; the adult has the dorsum covered with a transparent, waxy and knobbed secretion.

G. 1. **Nidularia** Targione.

2.—Body globular, rounded, abdomen not visible, enclosed in a dense white, cottony matter secreted by the insect; adult with only the last pair of legs visible; antennæ visible ... .G. 2. **Capulina** Sig.

Body elongate, cylindrical, thrice longer than broad; rostrum in young with a 2-jointed under lip; anal ring large, in form of a broad circle, finely punctated and striated transversely, with six hairs not extending beyond the abdomen... .....G. 3. **Antonina** Signoret.

(= *Laboulbenia* Licht.)

Body elliptical, enclosed in an elliptical sac, formed of a continuous waxy secretion, very convex above; two anal tubercles, the anal ring with eight spines..... G. 4. **Cerococcus** Comstock.

Body pear-shaped, not depressed, covered with a waxy envelope; anal segment semiglobose, rest of the body more firm and furnished with an anal chitinous cone emitting a long hollow filament formed from the secretion; larva with 6-jointed antennæ.

G. 5. **Xylococcus** Löw.

3.—Rostrum not jointed, arising from the usual place between the first pair of coxæ, without a tubercle; body surrounded with a white, cottony substance covering all except the dorsal disc; antennæ 6-jointed, tibiæ shorter than tarsus.....G. 6. **Gossyparia** Sig.

Rostrum jointed, species enclosed in a sac or envelope.

Species enclosed in a simple felted envelope, larva and adult with 6-jointed antennæ, the third joint the longest; tibia as long as the tarsus.

G. 7. **Eriococcus** Targioni.

Species enclosed in an envelope, which is pointed at both ends; larva with 6-jointed antennæ, the third and sixth joints the longest; adult with 6 or 7 joints, the third joint usually longer than the three following; anal ring with 6 hairs; tibia much shorter than tarsus.

G. 8. **Acanthococcus** Sig.

Species naked until fully grown; the ♀ forms a dense sac of waxy matter with which the eggs are laid; adult and larva with 7-jointed antennæ.....G. 9 **Rhizococcus** Sig.

Adult with 9-jointed antennæ, the terminal joint ending in 2 knobbed hairs; larva with 6-jointed antennæ, the last joint enlarged, stout.....G. 10. **Callipappus** Guérin.

Males.

Species undergoing their transformations in a small cottony, or felted sac.

Adult with 10-jointed antennæ, larva with 6; wings with a small lobe near the insertion; halters with a single bristle; head with 4–6 ocelli.

G. 1. **Nidularia** Sig.

Adult with 10-jointed antennæ, with some knobbed hairs, and usually with a tubercle at base; wings normal; halters with a simple bristle; larva with 7-jointed antennæ; stylus very short.

G. 7. **Eriococcus** Targ.

Adult with 11-jointed antennæ, the joints gradually increasing in length apically; wings normal; halters with one hook; stylus very long; abdomen with lateral lobes.....G. 10. **Callipappus** Guer.

Adult with 10-jointed antennæ, moniliform, pubescent, with some knobbed hairs on each joint and several on the last; the third joint the longest, the last the shortest; occasionally wingless.

G. 6. **Gossyparia** Sig.

Tribe II.—*Dactylopiini.*

Table of Genera.

Females.

Antennæ in adult with 9 joints.....3.

Antennæ in adult with less than 9 joints.

Anal ring with 6 or 8 hairs and spinnerets secreting a cottony substance, with 2 or 4 filamentary processes at the extremity.

Without clubbed digitules.....2.

With clubbed digitules; adult with 8-jointed antennæ, larva with 6.

Anal genital ring with 8 hairs; tarsi with 4 digitules; lower lip and rostral filaments not very short.....G. 1. **Dactylopius** Sig.

Anal genital ring with 6 hairs; tarsi with digitules, lower lip and rostral filaments very short.....G. 2. **Westwoodia** Sig.

2.—Adult and larva with 6-jointed antennæ.....G. 3. **Riperia** Sig.
3.—Adult with 9-jointed antennæ, larva with 6.
Eyes prominent; anal genital ring with 8 hairs; tarsi without clubbed digitules .....G. 4. **Puto** Signoret.
(= *Putonia* Sig.)
Eyes not prominent; anal genital ring with (?) 6 hairs; tarsi with two digitules..... G. 5. **Pseudococcus** Westw.
(?) G. 6. **Tetruria** Licht.

Males.

Antennæ in adult 10-jointed.
Larva with 7-jointed antennæ.
With four digitules..... G. 1. **Dactylopius** Sig.
With two digitules .....G. 5. **Pseudococcus** Westw.
Without digitules .....G. 3. **Riperia** Sig.
Larva with 8-jointed antennæ.
Without digitules; halters with two bristles; adult with four eyes and eight ocelli.....G. 4. **Puto** Sig.
With four digitules.....G. 2. **Westwoodia** Sig.

Tribe III.—*Coccini.*

Table of Genera.

Females.

Adult with 7-jointed antennæ, four basal joints thick; larva with six; body covered with a mealy powder; genital anal ring not ciliate; legs slender.....G. 1. **Coccus** Linn.

Males.

Adult with 10-jointed antennæ, larva with five; extremity of the abdomen with the lateral lobes with a protuberance, covered with many spinnerets and with three hairs at the end; stylus large, curved; halters without bristles; eyes smooth.....G. 1. **Coccus** Linn.

Tribe IV.—*Kermesini.*

Table of Genera.

Females.

Abdominal segments in adult with a single transverse row of spines; larva without abdominal lobes, and with 7-jointed antennæ; adult with 8-jointed antennæ.....G. 1. **Kermes** Linn.
Abdominal segments in adult without a transverse row of spines; larva with 6, adult with 7-jointed antennæ.....G. 2. **Margarodes** Guilding.

Males.

Antennæ 10-jointed, apical joint terminating in 4 knobbed hairs; eyes 4, ocelli 6; tibia very much longer than tarsus, 4 digitules.
G. 1. **Kermes** Linn.

Subfamily III.—LECANIINÆ.

Table of Tribes.

elted or cottony sac, the legs and antennæ being present
dult ♀; ♂ transforming in a cottony sac.
Tribe I.—**Signoretiini**.
eous scale, but on reaching maturity secreting a dense
filamentary mass, forcing it from the twig or leaf, and in
he eggs are laid, the scale having a peculiar transversely
tennæ and legs: ♂ transform-
.....Tribe II.—**Pulvinariini**.
a waxy scale, often great thickness, under which
o their transform is; the adult ♀ usually loses
d antennæ, but s no cottony mass at maturity;
♂ transforming under a scale.
cale of various forms, flattened oval, semi- bose or globular, more or less
smooth, rugose or tessellated; ♀ central, not shriveling up
towards the head. .....Tribe III.—**Lecaniini**.
Scale formed like the Diaspinæ; the ♀ after laying her eggs shriveling up
towards the head.....Tribe IV.—**Lecaniodiaspini**.

Tribe I.—*Signoretiini*.

Table of Genera.

Females.

Adult with 8-jointed antennæ, larva with 6.

Enclosed in a felted sac; first antennal joint not greatly lengthened.
G. 1. **Signoretia** Targ.

Enclosed in waxy laminæ; first antennal joint greatly lengthened.
G. 2. **Orthezia** Bosc.

Adult with 7-jointed antennæ; legs and antennæ retained in adult state; enclosed in a felted sac. .....G. 3. **Eriochiton** Maskell.

Adult and larva with 6-jointed antennæ.

Adult not lying in a cottony mass; legs and antennæ not atrophied; anal ring rounded with a groove in front and behind; genital anal ring with 8 hairs.....G. 4. **Phillipia** Targ.

Adult lying in a cottony mass; legs and antennæ atrophied; antennæ in larva thick and short, the joints scarcely visible, third joint longest; tibiæ twice as long as the tarsi; genital anal ring with 6 hairs.
G. 5. **Eriopeltis** Sig.

Males.

Antennæ 9-jointed; joints long, with partial whorls of hairs; eyes multiple; no knobbed digitules on feet.....G. 2. **Orthezia** Bosc.

Antennæ 10-jointed.

Antennæ very long, joints 3–8 much lengthened, the two terminal joints shortened, tibiæ thrice longer than tarsi; ocelli 6.
G. 5. **Eriopeltis** Sig.

Tribe II.—*Pulvinariini.*

Table of Genera.

Females.

Adult with 8-jointed antennæ, larva with 6; tarsi with 4 digitules.

Tibiæ more than twice as long as tarsi; genital anal ring with 8 hairs.

G. 1. **Lictensia** Sig.

Tibiæ two-thirds the length of tarsi; genital anal ring with 6 hairs.

G. 2. **Pulvinaria** Targ.

Males.

Antennæ 10-jointed; the third abdominal segment with lateral tubercles or lobes, four eyes and four ocelli.

Antennal joints 3, 4, 5 and 6 longest, the terminal joint with 3 knobbed hairs.

G. 1. **Lictensia** Sig.

Antennal joint 4 the longest, the terminal joint with 4 knobbed hairs.

G. 2. **Pulvinaria** Targ.

Tribe III.—*Lecaniini.*

Table of Genera.

Females.

Scale flattened oval, elliptic, or more or less globular, or rugose with dorsal keels .....2.

Scale not flat, high, waxy and tessellated.

Scale waxy, with single fringe of broad segments; larva with 6-jointed antennæ, adult with 6 or 7.....G. 1. **Ctenochitou** Maskell.

Scale horny, partly formed of the second pellicle; larva with 6-jointed antennæ, adult short, thick, atrophied, 7-jointed.

G. 2. **Lecanochiton** Mask.

Scale glassy, conical or elongated, elevated, striated with air cells; larva with 6-jointed antennæ, adult with 7.....G. 3. **Inglisia** Mask.

Scale of a waxy appearance, corneous, transparent, forming on its disc a tortoise-like tessellation and having seven rays or arms, one to the head and three on each side, corresponding to the stigmata, and a short one to the arms; antennæ 6-jointed, third joint equal to the last three combined, the sixth is longer than fourth and fifth and hairy; legs slender, short, tibia as long as the tarsus.

G. 4. **Visonia** Sig.

Scale of a thick, waxy substance, free from the insect, formed of layers of secretions from the spinnerets; the dorsum is covered usually with tubercles or tumescences, which disappear more or less as the insect reaches maturity; antennæ 6-jointed, the third joint the longest, nearly as long as all the rest together; claws with 4 digitules, the shorter pair stout and horn-shaped.

G. 5. **Ceroplastes** Gray.

2.—Adult scale divided into two equal parts by a film formed of the skin of the abdomen, which remains stationary, whilst the insect continues to increase on its dorsal surface until the lateral margins thereof meet and a ball-like form is produced, on the underside of which traces of a fissure may be seen; larva with 6-jointed antennæ.

G. 6. **Physokermes** Targ.

Adult scale not so formed.

Scale flat, hemispherical or spherical, smooth or rough.

Scale convexly flattened, oval, rough or highly convex, always with a deep anal emargination.

Adult with 7, larva with 6-jointed antennæ; tarsi with 4 digitules; genital anal ring with 8 hairs.....G. 7. **Lecanium** Lin.

Adult with 8, larva with 6-jointed antennæ: tarsi with 4 digitules: genital anal ring with 6 hairs.....G. 8. **Bernardia** n. g.

Scale hemispherical, or spherical waxy.

Anterior tibiæ not grooved for the reception of the tarsi.....3

Anterior tibiæ grooved for the reception of the tarsi.

Antennæ conical, 6-jointed.....G. 9. **Lecanopsis** Targ.

3.—Adult with legs and antennæ.....4

Adult without legs and antennæ.

Larva elongate with parallel sides, margins fimbriate; legs very long, tibiæ slightly longer than tarsi; antennæ 6-jointed.

G. 10. **Aclerda** Sig.

Larva oval, sides not parallel, margins not fimbriate; legs normal, the tibiæ and tarsi of equal length, claw long; larva with 6-jointed antennæ; the third joint the longest; anal genital ring with numerous hairs.

G. 11. **Carteria** Sig.

4.—Adult with 6-jointed antennæ, larva the same, with the last joint the longest; tarsi as long as the tibiæ, claws very long, the digitules not knobbed.....G. 12. **Ericerus** Guérin.

Adult with 8-jointed antennæ, the third and eighth joints the longest, larva with 6; the tibiæ are one-third longer than the tarsi, with short, thick digitules.....G. 13. **Fairmairia** Sig.

Tribe IV.—*Leconiodiaspini.*

Table of Genera.

Females.

Scale opaque, convexly flat or globular, not fringed.....2.

Scale nearly smooth, compact, spherical above, flat beneath, felted with a well developed fringe.

Adult without legs, antennæ completely atrophied, their place occupied only by circular rings; anal tubercles always present.

G. 1. **Plauchonia** Sig.

Adult without legs, but the antennæ present; anal extremity emarginated with two lobes; larva with 6 jointed antennæ; genital anal ring with long hairs.....G. 2. **Lecaniodiaspis** Targ.

Adult without legs or antennæ; anal emargination complete.

G. 3. **Asterodiaspis** Sig.

Scale more or less flattened convex, firm.

Adult surrounded with a regular double fringe, and on the dorsum a number of tubiform spinnerets secreting a substance isolated like the tubes, but together forming a complete sac; larva with 6-jointed antennæ with two anal lobes terminating in hairs.

G. 4. **Asterolecanium** Targ.

2.—Adult apodous, free, in a firm, globular, irregular shell; larva with anal tubercles.....G. 5. **Pollinia** Targ.

Subfamily IV.—DIASPINÆ.

Table of Tribes.

Adult ♀ not enclosed in the second larval skin, which forms a portion of the scale, and which itself is smaller than the perfect scale, and has a secretional appendage on its border.....Tribe I.—Aspidiotini.

Adult ♀ enclosed in the second larval skin, which forms a portion of the scale, and which is itself as large, or nearly as large as the perfect scale and without a secretional appendage.....Tribe II.—Leucaspini.

Tribe I.—*Aspidiotini.*

Table of Genera.

Females.

Scale of adult produced ovally, or mussel-shell shaped, *i e.*, narrowed in front and gradually widened posteriorly; first larval skin at the apex, or very near it.....2.

Scale of adult circular, or broadly oval; first larval skin placed in or near the middle.

Scale flat, plate-shaped, not enclosed beneath.

Last abdominal segment with five groups of spinnerets; apex not distinctly emarginate.....G. 1. **Aspidiotus** Bouché.

Last abdominal segment with five groups of spinnerets: apex distinctly emarginate.....G. 2. **Diaspis** Costa.

Scale highly convex, hemispherical, closed beneath by a secretional layer or plate.....G. 3. **Targionia** Sig.

2.—Scale long, oval, or elliptical; larval skin placed at the parallel sides.

Last abdominal segment with four groups of spinnerets.

G. 4. **Parlatoria** Sig.

Scale narrowed at apex, gradually widened posteriorly, mussel-shell shaped; larval skin placed at the apex.

Scale brown, convex; last abdominal segment with five groups of spinnerets.....G. 5. **Lepidosaphes** Shimer.

(= *Mytilaspis* Sig.)

Scale white, opaque, more or less convex; last abdominal segment with five groups of spinnerets.....G. 6. **Chionaspis** Sig.

Males.

Scale but slightly elongated, with the exuviæ placed always somewhat away from the middle.....G. 1. **Aspidiotus** Bouché.

Scale elongated, with the exuviæ at the apex, or near it.

With median and lateral keels.....G 2. **Diaspis** Costa.

With lateral keels, but no median.....G. 4. **Parlatoria** Sig.

Scale narrow elongated, convex, brown, like that of the ♀.

G. 5. **Lepidosaphes** Shimer.

Scale long, narrow, with nearly parallel sides and with lateral keels.

G. 6. **Chionaspis** Sig.

Tribe II.—*Leucaspini.*

Table of Genera.

Females.

Scale ovally produced, white; the first larval skin yellowish or brownish, the second pitch or red-brown.

Edge of abdomen with a fringe of spiny hairs.....G. 1. **Leucaspis** Sig.

Edge of abdomen without a fringe of spiny hairs.....G. 2. **Poliaspis** Mask.

Scale narrow at the apex, then abruptly widened and produced with almost parallel sides, delicate, brownish yellow; second larval skin covered by a secretion.....G. 3. **Fiorinia** Targ. (= *Uhleria* Comst.)

Scale circular, or broadly oval, rather flat; first larval skin oval, or almost circular, placed in the middle, or slightly away from it.

G. 4. **Aonidia** Sig.

Males.

Scale much elongated, narrow, pure white, very convex behind the larval skin, somewhat flattened posteriorly.

Terminal antennal joint with knobbed hairs.....G. 1. **Leucaspis** Sig.

Terminal antennal joint without knobbed hairs.....G. 2. **Poliaspis** Mask.

Scale narrow at the apex, much widened and produced behind, with almost parallel sides, usually carinated.....G. 3. **Fiorinia** Targ.

Scale oval, with the larval skin away from the middle.....G. 4. **Aonidia** Sig.

Subfamily V.—Brachyscelinæ.

Table of Genera.

Females.

Species with six legs, but short and unfit for use.

G. 1. **Brachyscelis** Schrader.

Species with two long posterior legs.....G. 2. **Opisthoscelis** Schr.

Species entirely without legs.....G. 3. **Ascelis** Schr.

Males.

Antennæ 10-jointed; abdomen long, slender, gradually enlarged towards apex and terminating in a stylus and two caudal filaments; eyes prominent.....G. 1. **Brachyscelis** Schr.

NOTES ON SOME NOCTUIDÆ, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.

BY JOHN B. SMITH.

Cerma olivacea n. sp.—Ground color an olivaceous gray, with bluish green and white powderings. Head and thorax irregularly mottled, with a considerable admixture of black scales. Basal line distinct, black, followed by a white line. T. a. line black, preceded by a white line with long outward teeth on the subcostal and median veins, an incurve in submedian interspace, with another long tooth on the internal vein. T. p. line is irregular, rivulous, in general course a rather even outcurve. S. t. line indefinite, the space between t. p. line and outer margin being irregularly blotchy; an even dusky terminal line. Fringes pale, cut with fuscous. Claviform concolorous, defined by a black semicircle below the orbicular and a vague black powdering from the horns of this to the t. a. line. Orbicular moderate in size, round, concolorous, defined by a greenish annulus edged with black scales, and with a whitish central dot. Reniform large, somewhat constricted medially very incompletely defined in black, with greenish powderings which extend to the costal margin. Secondaries smoky fuscous, somewhat paler basally, with a small discal lunule and a faint extra median line. Beneath, primaries blackish powdery, paler along inner margin; secondaries whitish, with a dark discal lunule and a powdery outer margin. Expands 1.20—1.28 inches; 30—32 mm.

Hab.—Colorado; Sierra Nevada, Cal.

I have seen three specimens of this very distinct species, all males. Two are from Mr. Edwards, one of them rather rubbed, the third is from Mr. Bruce's collecting, sent several years ago to Mr. Cramer, now in collection United States National Museum. In this specimen the green has faded to the sordid yellow so commonly assumed by this color in the noctuids, but in maculation there is absolutely no difference. It is much larger than the eastern *C. cora*, and the details of maculation differ quite widely while the pattern remains similar. It is fully congeneric with our eastern species, without meaning to assert its distinctness from *Bryophila*.

Pachnobia cinerascens n. sp.—Pale luteous gray; sometimes with a slight reddish suffusion, sometimes quite well powdered with black scales. Head and thorax concolorous. Basal line distinct, rigid, single. T. a. line single, blackish, oblique, outwardly angulated below the costa, nearly straight through the cell, outcurved in the submedian and marginal interspace. T. p. line single, blackish, distinct, only a little outcurved over the cell, finely crenulated. S. t. line concolorous, marked by a defined blackish preceding shade, which fades into the ground color before the t. p. line. A broken brown terminal line, followed by a faint yellowish line at base of fringes. Claviform wanting; orbicular round

or oval, blackish, without defining line. Reniform large, upright, oblong, blackish without distinct defining line. Secondaries smoky gray, uniform, with a faint distinct yellowish line at base of fringes. Beneath gray, primaries varying to smoky brown, secondaries powdery. A common, variably complete outer line and a distinct large discal spot sometimes obscured on the primaries. Expands 1.20--1.40 inch.; 30--35 mm.

Hab.—Alameda County, Cal., September and October.

Four male specimens are in the museum collection (through C. V. Riley) bearing the red number 339.

This species is aberrant in color for the genus, but in wing form and in pattern of ornamentation it is allied to *carnea*. Its luteous gray color, single median lines, and contrasting black ordinary spots render it easily recognizable. The antennæ are "brush like," i.e., the joints slightly produced laterally and furnished with bristly tufts. The thoracic vestiture forms an indefinite dorsal crest. The male genitalia have the harpes oblique at tip, forming a little projecting tooth inferiorly. The clasper is a single, stout, straight, pointed, corneous spur.

Pachnobia elevata n. sp.--Ground color of the reddish gray usual in this genus. Head and thorax immaculate. Primaries with the ordinary lines single. Basal line interrupted, rather indefinite. T. a. line incomplete, apparently upright and rather even to internal vein, below which it makes an outcurve. T. p. line complete, even, exserted over the cell, and somewhat irregularly oblique below to margin. A paler, more grayish shade through the s. t. space, in which a series of interspaceal brown dashes indicate the s. t. line. An interrupted terminal line. Claviform a yellowish streak from base to near middle of median space, outlined beyond t. a. line by a narrow black line. Orbicular elongate, the angles drawn out toward base and apex. Reniform small, lunate. Both spots are a somewhat paler gray and outlined by black scales. Secondaries whitish, smoky toward apices. Beneath whitish, powdery, with a diffuse common outer line and a moderate discal spot on all wings. Expands 1.40 inches; 35 mm.

Hab.- Colorado (Bruce).

A single good male from Mr. Neumoegen's collection. The specimen has the antennæ serrate and bristled, and is therefore allied to *carnea*, than which it has somewhat more pointed wings and entirely different markings. The cell is not black-filled around the ordinary spots and the character of the transverse lines is entirely different. The genitalia consist of a broad harpe with obtusely rounded tip, inwardly fringed with spinules. From the centre of this arises a broad, excavated, corneous process, with an irregular outline, forming the clasper.

Carneades fusimacula n. sp.—Head and thorax mouse-gray, collar with a blackish central line. Primaries dull red-brown, subcostal and median vein white powdered. Basal line geminate, well defined, included space with white powderings. T. a. line geminate, interrupted below costa, a long inward angle on cell, then evenly oblique outwardly to hind margin. Below the median vein the defining lines are well written, the included space concolorous. T. p. line even, outcurved over cell, thence parallel with outer margin. The inner defining line is a series of blackish lunules, the outer a vague, diffuse line, the included space very slightly paler than ground color. S. t. line marked only by the slight difference in shade between s. t. and terminal spaces; an interrupted, sublunate terminal black line, followed by a narrow yellow line at base of fringes. Apical spot powdered by a few white scales; a black basal dash below median vein, joining to the moderate, black margined claviform. A black filling to the cell before orbicular, and between the ordinary spots. The latter are fused, the orbicular oblong, oblique, merging inferiorly into the reniform, which is somewhat extended outwardly from its lower angle. The combined spot narrowly black ringed with a white interior line and a few white scales relieving the otherwise concolorous spots. Secondaries even, smoky fuscous, with paler, interlined fringes. Beneath smoky fuscous, powdery, with an incomplete outer line and somewhat indefinite discal lunule. Expands 1.28 inches; 32 mm.

Hab.—California.

A single male specimen in good condition. The characters of the *tessellata* group are well marked, and the species is intermediate between *divergens* and *redimicula*, differing amply from both in the fused ordinary spots. The white marked veins are like *divergens*, while the s. t. line is like *redimicula*. The male characters agree with those of the allied species, and figure 64 of my Revision of Agrotis will answer for this species equally well.

Perigea pulverulenta n. sp.—Ground color a vague, powdery reddish gray, varying in tint according to the relative predominence of red, white, or blackish scales. All the normal maculation present, but obscured by the powdery base. Basal line geminate, concolorous, defining lines fuscous or blackish, twice angulated. T. a. line somewhat paler, with fuscous or black defining lines, not always complete and sometimes vague: outwardly oblique, somewhat curved, inwardly angulate on the median and submedian veins. T. p line obsoletely geminate, the inner line lunulate, the outer vague and even, sometimes wanting, its course evenly bisinuate without the usual long outcurve from the costa over reniform. S. t. space paler than median and usually also than terminal space; s. t. line pale, diffuse, sinuate, marked by the difference in shade between s. t. and terminal space, and also by a more or less obvious preceding shade. Fringes interlined with fuscous, feebly scalloped: median space, as a whole, somewhat darker than the rest of the wing; a dusky or blackish median shade, which in the submedian interspace sometimes forms a complete connection between the median lines. Claviform small, though quite wide, concolorous, incompletely outlined in black. Orbicular round or oval, oblique, pale ringed with dusky centre. Reniform upright, quite large, somewhat constricted centrally, pale ringed with concolorous or paler center. A dusky costal patch in the s. t.

space and a paler apical patch in terminal space. Secondaries fuscous, with broad black outer margin, a narrow preceding dusky line and a dusky discal lunule. Fringes pale, interlined with fuscous. Beneath powdery, primaries darker, both wings with a discal spot, narrow outer line and broad dark outer margin, all variable in distinctness. Expands 1.00—1.08 inches; 25—27 mm.

Hab.—Colorado (Bruce); Las Vegas, N. Mex. (Meeske); New Mexico (Snow); Arizona (Edwards).

This little species has long puzzled me, and I refer it to *Perigea* rather because it is congeneric with *P. perplexa* Grt., than because it strictly belongs here.

Four of the specimens collected by Mr. Bruce are in the collection of the United States National Museum, two of them labeled simply "Colorado," the others labeled "Foot-hills." There is little or no variation, and the species once generically placed, is easily recognizable.

Polia pulverulenta n. sp.—Ground color a powdery ashen gray, the markings indefinite, vague. Basal line black, interrupted, apparently single. T. a. line single, black, rather diffuse, outwardly oblique and somewhat outcurved between the veins. T. p. line crenulate, outcurved over the cell and parallel with outer margin below that point, blackish, interrupted, almost lunulated, and nearly obsolete toward costa. This line is quite well removed toward margin, widening the median space and narrowing the space beyond to the outer margin. A series of somewhat diffuse interspaceal black marks indicates the s. t. line; a series of small terminal lunules. Fringes gray. Claviform vaguely indicated by a blackish shade. Ordinary spots vague, indefinite, concolorous, incompletely outlined, apparently of the usual shape and proportionate in size. An oblique, diffuse blackish shade from costa, outwardly over the reniform and darkening it inferiorly; continued as a vague fuscous shading through the median space. Secondaries dirty white, powdery, veins soiled, a dusky lunate marginal line and discal spot and extra discal line of under side showing through. Beneath whitish, powdery, with a common extra discal line and a discal spot on all wings. The hind angle of primaries is somewhat retracted; thorax with a small, divided anterior crest, and a more distinct posterior tuft; abdominal tufts small. Expands 1.88—2.08 inches; 47—52 mm.

Hab.—Colorado.

Two male specimens with serrate and tufted (brush-like) antennæ. This species, though referred to *Polia*, probably cannot remain in this genus. It is referred there because it is quite close to and perfectly congeneric with *Polia contacta* Wlk., which it resembles both in size, color and general habitus, differing abundantly in many respects. The species bears a very decided resemblance to *Mamestra discalis*, and a specimen in the Museum collection (from the Meske collection) bears Mr. Grote's label, *Mamestra discalis*. The specimen

was collected by Snow, and I feel assured there are others of this species so misnamed. The other specimen was sent me by Mr. Bruce.

The genus *Polia* contains quite diverse material, and the species will probably be distributed among other genera, some mayhap to *Hadena*. Indeed, Mr. Grote has described the same species as a *Hadena* (*diversilineata*), and again as a *Polia* (*illepida*).

CALOPHASIA Steph.

Head not retracted. Thorax with fine, smooth vestiture. Abdomen without dorsal tufts. Antennæ of male with short, rather dense ciliæ, at base with a feeble tuft, thorax posteriorly with a truncate tuft. Primaries short, widening outwardly, more strongly rounded at internal angle, outer margin and fringes entire. The above characterization is from von Heinemann (Schmett. Deutsch. 391), and with it agrees fairly well a species which does not seem to fall in naturally with any American genus known to me. In wing form the species agrees well with *opalina;* in type of maculation it is more like *platyptera*, the latter being wider winged than its congener.

Calophasia strigata n. sp.—Head, thorax and primaries ash-gray. Head marked with fuscous, collar paler at base. Thorax with an admixture of fuscous scales. Primaries with a dusky shade through the cell and terminally, the transverse lines obsolete; the veins are all black marked, and the wing has, therefore, a strigate appearance. Claviform long, extending from the base to beyond the middle of the wing, with narrow black defining lines, filled with a reddish suffusion. A faint reddish tinge beyond the reniform, which is white ringed, narrow, upright, with an inferior spur projecting inwardly toward the orbicular. The latter is narrow, clavate, oblique, white ringed. On veins 3 and 4 the dusky terminal shade is cut by a white shade accompanying the veins; a row of small, dusky terminal lunules. Fringes cut with fuscous, and rather long. Secondaries whitish basally, soiled fuscous outwardly, the veins dusky. Beneath whitish, powdery. Expands 1.20 inches; 30 mm.

Hab.—Colorado (Bruce).

Two female specimens are before me, neither of them entirely perfect, but yet in excellent condition. The species has the appearance of *Oncocnemis* without its structure. One of the specimens is in the United States National Museum.

DRYOBOTA Lederer.

Eyes lashed. Tongue strong. Thorax arched, with distinct anterior lateral angles. Anterior femora not dilated, tibiæ unarmed. Of median size, head and thorax with short, coarse vestiture, the lat-

ter mostly flattened scales, collar not crested. The palpi with coarse vestiture and small terminal joint. Antennæ at base with a tuft of hair, serrated in the males, with bristle tuftings. The thorax quadrate, laterally produced at the angles, with smooth anterior and posterior tufts, abdomen untufted. Primaries short, not greatly widening, apices not acute, margin evenly rounded, fringes scalloped.

This is von Heinemann's definition, and it agrees well with the European species, but not at all with the American species referred to the genus. *Dryobata opina* Mr. Grote now refers to *Valeria*, while *stigmata* is utterly unlike the European species. The wing form is absolutely different, the fringes are only feebly sinuate and not scalloped, and the abdomen is prominently tufted; but I know at present no other genus to which *stigmata* could be better referred, and as I believe it has congeners in other genera I will simply call attention to the fact, here, preliminary to the description of three species agreeing better with the description of the genus, but very unlike *stigmata* in every respect, and, though themselves congeneric, and with the same habitus, differing quite strongly in antennal structure.

The species are ash-gray, with a reddish or brownish suffusion, powdery, all the maculation well marked. The ordinary spots are well sized, and as a whole the species have a very decided resemblance to *Litholomia napæ* in type of maculation, emphasized by the more or less prominent, rigid, dark, median shade or line, which forms the most obvious ornamental feature. One of the species which I had dubbed *Hadena latifascia*, perhaps in one or two collections, I find is Prof. French's *Homohadena elda*. It has nothing, whatever, in common with *Homohadena*, and this species is perhaps nearest of all to typical form of the genus.

Dryobata elda French.

1887 Can. Ent. xix, 5, *Homohadena*.

The male antennæ are distinctly and well pectinated; in the female the joints are marked. A broad brown shade with blackish defining lines fills the space between the ordinary spots, and below the median vein its outer border extends along the t. p. line.

Four specimens in the National Museum collection (through C. V. Riley) are from Nevada County, Cal., September, collected by Koebele, and Mr. Edwards has also sent it to me labeled Sierra Nevada, Cal.

Dryobata rectifascia n. sp.—Rather dark bluish ashen. Collar with a broad median black line. Basal half line distinct, pale, obsoletely geminate; a short, black, longitudinal basal line extending to the half line, the inclosed costal

space paler and with a brick-red tinge. T. a. line upright, or a little outwardly oblique, geminate, outer defining line usually very distinct and touching the orbicular in its course. T. p. line geminate, inner line darker, included space paler; in course it is very even, widely outcurved over the reniform, altogether what might be termed S-shaped, with most of lower extension lopped off. The s. t. space is pale, except costally, darkening to form a continuous dusky shade before the s. t. line, which is pale and irregularly sinuate. There is an admixture of reddish scales in this preceding shade which is most obvious at anal angle. A prominent, rigid black line from the costa, forming the inner margin of reniform and continued thence to the hind margin at t. p. line. Claviform small, indefinite, marked only by a vague brick-red shade. Reniform large, kidney-shaped, suffused with brick-red: a black line at base of fringes, which have a dusky interline. Secondaries soiled white, veins and terminal line dusky. Beneath whitish powdery, with a more or less complete outer line and discal spot. Expands 1.24--1.40 inches; 31--35 mm.

Hab.—Sierra Nevada, Cal. (Edwards).

The antennæ of the male have the joints but feebly marked and ciliated, not at all serrate, much less pectinated. The transverse median line corresponds to the outer defining line of the median shade in *elda*, but is more prominent. The differences in details need not be pointed out where structural characters declare the species different.

An incomplete specimen is in the United States National Museum; the wings and antennæ are, however, perfect, and the specimen is one of my types.

Dryobota curvifascia n. sp.—Ashen-gray or darker, with or without an admixture of brick-red scales, the black maculation consisting generally of elevated scales, giving the species a rough or "squammose" appearance. Collar inferiorly pale, a vague reddish median line, surmounted by an equally vague blackish one. Primaries, basal line geminate, blackish, vague, reaching to the short black basal dash, along which a brick-red shade is more or less marked. T. a. line geminate, incomplete, outwardly oblique and slightly curved between the veins. T. p. line vague, scarcely definable, obsoletely geminate, evenly outcurved over cell, and incurved beneath. The s. t. space is outwardly a little paler, a partial series of black or blackish lunules, becoming more distinct toward inner margin; an admixture of reddish in these lunules also increases toward anal angle. Terminal space dusky; a blackish terminal line and a narrow pale line at base of fringes. Claviform apparently obsolete. Orbicular oblong, oblique, concolorous, with a narrow black margin and a very narrow white annulus. Reniform narrow, quite long, lunate, shot with reddish, defined by black and white scales rather than lines. A dusky median shade, feebly bisinuate, touching neither of the spots and reaching margin between the ordinary lines. Secondaries soiled white or smoky, with a blackish terminal line. Beneath powdery, pale, with a variably distinct discal spot and outer line. Expands 1.12—1.20 inches; 28—30 mm.

Hab.—Sierra Nevada, Cal. (Edwards), September; Placer County, Cal., through C. V. Riley.

The Placer County specimen in the United States National Museum is the smallest of the three, and is also most obscurely marked. It lacks the brick-red shades altogether, the gray is more sordid and even, and the maculation is less definite than in the other specimens.

The male antennæ are rather lengthily serrated, almost pectinated, differing from both the preceding species in this character as well as in the median shade, which is here not at all prominent, narrow and sinuate, not touching either of the ordinary spots nor the t. p. line.

Apamea lunata n. sp.—Ground color a powdery reddish ocher. Head and thorax immaculate. Primaries with basal line apparently wanting. T. a. line narrow, whitish, evenly outcurved. T. p. narrow, whitish, even, but little outcurved over cell and rigidly oblique below. S. t. line marked by a preceding costal shade and a series of interspaceal black dots; a brown line at base of fringes. Claviform and orbicular obsolete. Reniform a narrow white lunule, margined by black scales at the end of the cell. The veins, through the median space, are more or less evidently black powdered. Secondaries very pale coppery, somewhat more dusky outwardly. Beneath pale, with reddish powderings. Expands 1.04—1.12 inches; 26—28 mm.

Hab.—Alameda, Cal., in June; Mt. Shasta District, Cal. (Edwards).

Both sexes are before me. The species is allied to ***purpuripennis*** Grt., but the ground color is entirely different, and there is not the least chance of confusing the species. The male antennæ are laterally tufted with short bristly hair, but not serrate.

Orthosia disticha Morr. has hairy eyes, and is an ***Ulolonche*** Smith. It comes close to *U. fasciata* in type of maculation as well as wing form; but besides the difference in color the contrasts are nowhere as defined, and the reniform is not discolorous, though it is well defined and of the same form.

The male genitalia agree perfectly in type with the species which I have already included in this genus (*modesta, fasciata, niveiguttata*).

This seems to be one of the cases where the sexual structure is of generic, rather than specific importance, the agreement being close in type and in details, while the ornamental characters are widely variant.

Telesilla carneola n. sp.—Head and thorax a carneous or vinous gray, powdery, apparently without distinctive ornamentation, but the specimen is imperfect in this respect. Primaries with a fine vinous red ground color, more or less evidently gray powdered, median space with a deep, blackish brown shading. Terminal space deep umber-brown. Basal line very indistinct, narrow, composed of whitish atoms. T. a. line narrow, thread like, powdery, gray, slightly outcurved. T. p. line vague, powdery, defined rather by the difference

in shade between the median and subterminal space, and by short black lines on the veins, followed by minute white dots; a whitish powdering through the s. t. space, which becomes darker outwardly, shading into the deep brown terminal space. S. t. line very indistinct, broken, barely traceable, its course irregular. Fringes dark, with a grayish central line. Orbicular small, round, concolorous outlined in pale gray. Reniform slightly constricted medially, concolorous, outlined by a narrow gray line. Secondaries yellow fuscous at base, becoming smoky outwardly, a pale line at base of fringes. Beneath brown, powdery, with a median line and vague discal spot on primaries. Secondaries pale basally, a broad dark extra median line and a small discal dot. Expands 1 inch: 25 mm.

Hab.—Las Vegas, N. Mex. (H. Meeske).

A single specimen from Mr. Neumoegen's collection, taken by Mr. Meeske in 1889.

Compared with the eastern *cinereola*, the present species is stouter in body, with narrower wings. The general scheme of maculation is identical, but the contrasts are much greater. While there is an evident resemblance there can be no danger of confusion with the eastern form.

Dr. Harvey's *navia* has a tuberculated front and armed fore tibiæ, and belongs, therefore, with the Stiriinæ. It may be best referred to *Stibadium* for the present.

As Mr. Grote has recently avowed his responsibility for Dr. Harvey's species, the failure to see the obvious structural characters separating this species generically from *cinereola*, is chargeable to the former.

Plusia angulidens n. sp.—Head, thorax and primaries bluish gray in ground color, with fuscous powderings. Collar with a median and subterminal fuscous line, and the patagiæ have also two rather diffuse transverse lines. Thoracic tuft brown, basal abdominal tuft almost black, but with a white margin. Primaries with the basal line distinct, black, geminate, inwardly oblique from the costa. T. a. line inwardly oblique, with three feeble outcurves, outer line black, inner vague, and marked on the costa principally, though also traceable below internal vein; the line is interrupted on the median vein, where, at the origin of vein 2, the greenish silver υ is attached, much as in ου. A very small silver dot follows, but is completely and even widely separated. The median space is vaguely and irregularly fuscous shaded. T. p. line oblique, almost parallel with the outer margin, irregularly and feebly angulate outwardly; the line is whitish centered, the geminate defining lines fuscous. S. t. line prominent, black, irregularly and widely angulated and dentate, shading off by a fuscous tinge into the s. t. space, but sharply contrasted against the bluish gray terminal space. This character forms the most obvious feature in the ornamentation. A fuscous shading near outer margin, forming irregular patches subapically. Fringes gray, cut with fuscous. Orbicular a very vague, oval, oblique spot. Reniform narrow, upright concolorous, very imperfectly defined by narrow black lines. Secondaries yellowish fuscous basally, with a broad smoky brown outer

margin. Fringes white, cut with fuscous. Beneath, both wings yellowish, powdery, with whitish fringes, cut with black, with a broad, vague, outer line and equally vague discal spot. Expands 1.36 inches; 34 mm.

Hab. —Colorado (Bruce).

The species is allied to *P. viridisignata* Grt., or yet more closely to *celsa* Edw., of the latter of which Mr. Neumoegen has the type. It differs from both in the greater prominence and angulation of the s. t. line, and from the latter in the less distinct transverse maculation, and the want of the black shadings described by Mr. Edwards. The underside of the new species does not agree at all with what that of *celsa*, next to which, however, it must probably stand. Several specimens were taken by Mr. Bruce, who has also taken *P. snowi* in some numbers.

Cirrhophanes duplicatus n. sp.—Ground color pale ocher yellow, with the maculation deeper, orange yellow. Head and thorax immaculate, the thoracic tuftings orange tipped. Primaries with a coppery flush over costal region to middle of wing, and in discal cell. Ordinary lines single. Basal line barely visible. T. a. line widely angulated on subcostal vein, in submedian interspace, and again to the hind margin. T. p. line even or very feebly lunate, widely outcurved over cell, then very obliquely inward to the middle of the hind margin. S. t. line very distinct, broader than the others, even, parallel with outer margin. A rich orange line at base of fringes. A somewhat deeper shading through the terminal space. All the veins orange marked. Ordinary spots obsolete. Secondaries ocherous, paler at base, and with an orange terminal line. Beneath, primaries reddish ocherous, secondaries pale, powdery. Expands 1.16 inches; 29 mm.

Hab —Platte Canon, Col., 6500 feet.

This species, collected by Mr. Bruce, is before me in one female specimen only. It is somewhat smaller than *triangulifer*, and lacks altogether the rich tinting of that species. In maculation the two are very much alike. The frontal protuberance of the new species consists of a simple nipple-like dilation, differing quite strongly from *triangulifer*, and the fore tibiæ seem unarmed. The specimen is imperfect in leg structure—most of the legs wanting—and the claw may have been broken off. In thoracic tufting, wing form and general habitus, this species is the close ally of its congener.

The specimen is in the United States National Museum.

Orrhodia californica n. sp. Head, thorax and primaries a deep, rather sordid lutcous brown, with close, black powderings beyond the t. p. line, darkening the primaries terminally. Head and thorax immaculate. Basal line scarcely traceable. T. a. line geminate, defining lines a series of black scales, included space pale; in course the line is outwardly oblique and outcurved between the veins. T. p. line geminate, pale, the defining lines blackish, very

even, its general course bisinuate, outcurved over, incurved below the cell. Through the dusky outer portion of the wing the veins are pale, and the irregular, indefinite concolorous s. t. line is rather indistinctly traceable. A row of black terminal lunules. Fringes with a pale line at base. Claviform vaguely indicated by fuscous brown scales. Orbicular upright oblong, pale ringed and dusky powdered; reniform large, slightly constricted centrally, pale ringed and black powdered. Secondaries even, fuscous brown. Beneath fawn gray, powdery; secondaries paler basally; both wings with an outer line and dusky discal lunule. Expands 1.36 inches; 34 mm.

Hab.—Sierra Nevada, Cal.

A single male from Mr. Edwards' collection with "brush-like" antennæ. In habitus and appearance this species resembles a *Tæniocampa*, but the eyes are naked and strongly lashed. It is congeneric with the European *O. silene*, and seems distinct from our species of *Glœa* and allies.

In introducing the term *Orrhodia* into our fauna I do it not to replace any term now in use, but because it seems as though it really refers to a type different from the others heretofore noted. The European species seem very unlike each other and may not be held together. On the other hand additional material of the species before me may indicate another genus. The type is perfect, except that one antenna is missing.

PLEROMA n. gen.

Eyes naked, with long hairy lashes. Head retracted, moderate in size, with divergent hairy vestiture, palpi short, scarcely exceeding the frontal vestiture, divergently clothed. Tongue moderate, spiral. Thorax quadrate, heavy, vestiture long, somewhat flattened hair; collar somewhat produced in front, forming a central crest; an indefinite loose posterior tuft. Breast densely clothed with long woolly hair. Legs unarmed, short, stout, with dense, long woolly hair on femora and tibiæ. Abdomen with dorsal tuftings, short, stout, conic in the female and scarcely exceeding hind angles of the secondaries in either sex. Antennæ simple in both sexes. Primaries trigonate, comparatively short and broad, with produced apices and a very oblique, evenly curved outer margin, joining with the inner margin at a very obtusely rounded angle. Secondaries proportionate, fringes long.

I could not satisfactorily refer the species with the above combination of characters to any of the described genera. It is evidently related to *Xylina* without the depressed form and narrow wings,

while the type of ornamentation is different from any other species of this series which is known to me, approaching that of *Cucullia*.

P. obliquata n. sp.—Bluish ash-gray, varying in depth of tint from whitish to very deep, almost blackish. Collar with a central white line between two black lines, which in a pale specimen is reduced to a central black line and a fuscous upper line. Thorax with black hair intermixed, but forming no distinct ornamentation. Primaries with all the veins black marked. T. a. line single, quite broad, outcurved, but distinct only into the submedian interspace and not attaining the inner margin. T. p. line single, fuscous to black, almost parallel with outer margin, followed by a narrow pale shade. An oblique, broad, dusky shade, sometimes broken up into spots from the apex to the hind margin near the t. p. line. S. t. line vague, broken, in pale specimens marked only by preceding black interspaceal marks. A dusky line at base of fringes, which alternate in two very slightly different shades of gray and have a pale central line. The ordinary spots are wanting, only the reniform being vaguely indicated by a dusky shade, more evident in pale specimens. Secondaries pale fuscous to smoky brown, with darker veins and a dusky discal spot. Fringes pale, with a dusky interline. Beneath, primaries blackish or smoky, white powdered outwardly; secondaries paler, more powdery, with an outer dark line and dusky discal spot. Expands 1.28—1.32 inches; 32—33 mm.

Hab.—Sierra Nevada, Cal.; Colorado.

Both sexes are before me, the California specimen from Mr. Edwards, the others collected by Mr. Bruce. The California specimen is a much paler gray and the maculation is more distinct, but there does not seem to be any other difference, and I can scarcely think them distinct. I consider the Colorado specimens represented in the National Museum collection typical of the species and the Californian as a race.

ANORTHODES n. gen.

Eyes naked, large, globose, scarcely prominent. Head moderate, frontal vestiture scaly, projecting, but forming a smoothly rounded surface. No frontal modification. Tongue moderate, corneous; palpi stout, normally noctuidous in form, reaching to the middle of front in the male, a little shorter in the female. Antennæ simple in both sexes, finely ciliated laterally. Thorax small, convex, vestiture flattened hair and scales, smooth, forming no tuftings. Abdomen smoothly scaled, untufted. Legs stout, with rather thick scaly vestiture, tibiæ not spinose, anterior unarmed. The primaries are large, broad, with arched costa and rounded apices and outer margin. The inner margin is nearly as long as the costa. Secondaries proportionate.

This genus has a very decided habital resemblance to *Orthodes*, but differs at once by the naked eyes. The species upon which the genus is based has been known to me for several years. It is in the collection of the United States National Museum, taken as far back as 1882, and I have received it for name several times. I have tried to identify it with all genera or species to which it could have been reasonably referred, but cannot find any description to cover it, nor do I find it named in any collection thus far examined. It may be confused under *Orthodes cynica*, to which it bears some resemblance. I have named the form.

Anorthodes prima n. sp.—General color a soft, even mouse gray. Head and thorax immaculate. Primaries with all the lines evident, the basal, t. a. and t. p. single, fine, blackish, the s. t. broader, pale. Basal line nearly straight. T. a. line with a decided inward angle on the cell, irregularly oblique below. T. p. line outcurved over cell, somewhat incurved below; it is even or slightly crenulated. S. t. line yellowish, irregular, as a whole closely parallel to the outer margin. A vague blackish median shade line, often diffuse, obtusely angulate on the reniform, quite rigid below to the hind margin. Claviform wanting. Orbicular punctiform blackish. Reniform an indefinite blackish lunule, sometimes not distinct, marked with a few whitish scales. A very faint, yellowish terminal line. Secondaries very faint smoky gray, shining. A vague discal lunule and a very distinct yellow line at the base of the somewhat paler fringes. Beneath, glistening gray, powdery, somewhat darker on primaries, both wings with a variably complete and distinct outer line and discal lunule. Expands 1.12–1.20 inches. 28–30 mm.

Hab.—Archer, Fla., May 24th; Washington, D. C., May 15th, September 2d and 12th (U. S. Nat. Mus.); Columbus, O. (Tallant).

Under the number 3503, bred specimens are in the biological collection (coll. C. V. R.) and the life-history has been made out.

There should be no difficulty in recognizing this species by the soft color and single, fine median lines. The harpes are broad, upcurved at tip, a small corneous process at inferior angle, where also the surface is set with acute teeth; a stouter and longer corneous spur from below the middle of the harpe inclined upward and inward, or exactly opposite the other spur.

Trichoclea postica n. sp.—Pale, somewhat creamy white, with a faint luteous admixture, powdery. Primaries with all the maculation faintly written, blackish. Basal line marked on costa by a geminate black spot, and again faintly below the median vein. T. a. line upright, geminate on costa only, lunulate, preceded by a variably obvious pale shade. T. p. line also marked by costal dots, thence single, crenulated, outcurved over reniform, rather evenly oblique, or with but a slight incurve below. This line is also accompanied by a somewhat paler shade, and a series of pale venular dots outwardly. S. t. line marked on

costa, but very vaguely below, becoming in one case scarcely traceable, in the other fairly defined by a dusky preceding shade. A series of blackish terminal lunules. Claviform small, imperfectly outlined, concolorous. Orbicular wanting, or but faintly indicated, then oval, rather small. Reniform large, upright, kidney-shaped, laterally only defined, with a central fuscous lunule, which expands somewhat inferiorly. A vague median shade through the outer part of median space. Secondaries in the male white, veins fuscous marked; a narrow dusky outer margin; a distinct discal lunule. Secondaries in the female dusky, smoky brown, somewhat paler basally, fringes white. Beneath white, powdery, with a variably distinct crenulate outer line and discal spot. Expands 1.40 inches; 35 mm.

Hab.—Denver, Col. (Bruce).

Male and female are before me, the former from the coll. U. S. Nat. Museum (two specimens), the latter from Mr. Neumoegen. The frontal protuberance is quite prominent, the armature of the fore tarsi much as in *decepta* rather than *edwardsii*. The male genitalia are similar to those of the other species, and best described by a reference to figure 5 on Pl. II, with which should be compared also Pl. XXII, figs. 18 and 19, Proc. U. S. Nat. Mus. vol. xii.

Trichoclea antica n. sp.

Every word of the description of *postica* will apply as well to this species, save that the secondaries of the male are less soiled, more purely white, and in the female the secondaries are like those of the male *postica*; otherwise the maculation is the same, and I should have considered the specimens identical, but for the fact that the frontal protuberance is much smaller, less prominent, the tarsal armature weaker even than in *edwardsii*, and finally the male structures differ quite strongly, first in absolute size, those of the present species being fully one-third larger from the same sized male and also in the arrangement of the corneous claspers, which differs from all of the other species, and is figured on Pl. II, fig. 4. Expanse as in *postica*.

Hab.—Los Angeles County, Cal., April 10th; good specimens are in the National Museum collection (through C. V. Riley).

Tæniocampa orobia Harv.

This insect I could not find in the Meske collection, from which it was described, when I wrote my Revision (Proc. U. S. Nat. Mus. xii, 455–496, 1889). The completed incorporation of the collection into the regular museum series has brought to light the typical Texas specimen, and it turns out to be exactly like specimens of *oviduca*,

to which it must be cited as a synonym. Mr. Grote claims credit for Dr. Harvey's descriptions, and he must be charged with this synonym.

T. pacifica Harv.

The museum has received, through Dr. Riley, four specimens of this species from Alameda County, Cal., January, February and March, and with the red number 334. The specimens are all males, and confirm the opinion that we have to do with a good species and not a variety of the eastern form. The characters pointed out by me hold good, save that the orbicular may be as dark as the reniform. As the whole the specimens look more robust and are darker, more powdery.

Tæniocampa annulimacula n. sp.—Ground color pale fawn gray; a fine soft tint. Head and thorax immaculate. Primaries with basal and t. a. lines wanting. T. p. line a curved series of small venular dots. S. t. line rather irregular, concolorous or slightly paler, marked by a somewhat darker preceding shade (rarely the line will be entirely wanting). A narrow median shade line, bent on the reniform, also sometimes wanting. Orbicular concolorous, usually obsolete, sometimes outlined by ferruginous scales, moderate, round. Reniform large, upright, concolorous, more or less completely defined by a rusty red-brown annulus, always distinct at the outer side at least, and forming the only obvious bit of maculation on the entire wing. Secondaries very pale powdery fawn gray, with a faint, darker, discal lunule. Beneath pale, powdery fawn gray; primaries with a discal dot and a more or less evident, sometimes obsolete outer line. Secondaries with a distinct discal spot. Expands 1.68 inches; 39—42 mm.

Hab.—Texas, February 17th, 19th and 25th (Belfrage).

Five good specimens are in the National Museum collection (coll. C. V. R.). The antennæ of the male are lengthily bipectinated, the habitus and wing form as in my *pectinata*, to which this species is allied. The very pale fawn gray color, the lack of all prominent maculation, save the rusty ring to the reniform, and the plump, woolly thorax, will readily identify this form. It bears a casual resemblance in habitus to *Copipanolis*, and the assignment of the specimens to that series by the collector caused me to overlook them in my studies on the Museum material previously.

The male characters are distinctive. The harpes narrow toward tip, which is somewhat drawn out superiorly into an acute point. A stout, curved, corneous process from the middle of the outer third, a smaller process at its base inferiorly and a longer stouter curved process from behind the middle of upper margin.

Tæniocampa trifascia n. sp.—Head and collar pale, whitish ocherous, this pale tint extending along the costa of primaries. Color else a powdery reddish ocher. Primaries more or less dusted with black scales. Basal line pale, mostly lost in the pale costal region. T. a. line broad, pale regularly outcurved, even. T. p. line broad, pale, even, outcurved on costa, then inwardly very oblique and only very slightly incurved. S. t. line broad, pale, outwardly diffuse, inwardly defined by a powdering of dark or black scales. A series of small terminal lunules. Fringes with a series of black points. A broad, variably distinct shade of black scales through the outer part of median space. A series of black venular dots through s. t. space. Claviform wanting. Orbicular round or oval, small or moderate, pale ringed and dusky centered. Reniform upright oval, more or less evidently black powdered. Secondaries white. Beneath white, with a faint ocherous tinge. Expands 1.08—1.20 inches; 27—30 mm.

Hab.—Foot-hills, Col. (Bruce).

Three specimens (two males one female) are before me. The antennæ in the male are very feebly serrate, the wings are narrower and longer than usual, and the nearest ally is *palilis*.

I notice that, by some accident, group *palilis* is omitted in my Revision of *Tæniocampa*, though the characters of the group are given.

One pair is in the coll. U. S. Nat. Museum; others are in Mr. Bruce's hands.

Tæniocampa pectinata Smith.

When I described this species, from scant material, there was a rubbed and faded male specimen in the coll. U. S. Nat. Mus., which I identified with this form, and from which the figure of the sexual characters was made. Since that time new material has been received, and I have described the genus *Perigonica*, to which I find, on renewed study, the supposed *T. pectinata* belongs. A number of fresh, clean specimens of the latter enable me to give a correct figure of the sexual characters, and for comparison I add the figures of *Perigonica angulata* and *P. fulminans*, all from typical specimens. See Pl. II, figs. 7, 10 and 11.

PERIGRAPHA Led.

This genus, among others, was monographed, our American species alone considered, in the Proc. U. S. Nat. Museum xii, 490, and I there called attention to the fact that our species did not in all respects agree with the European types. I have since received a specimen which fills all the requirements of the generic description, and Mr. Edwards' genus *Stretchia*, which antedates Mr Grote's name

Acerra, must therefore be used for the species heretofore referred to *Perigrapha*.

The genus *Perigrapha* will be represented in our fauna by

P. prima n. sp.—Deep bluish ash-gray, with a fuscous powdering. Front of head and base of collar discolorous yellow fuscous; patagiæ obscurely black margined Basal line obscurely marked, scarcely traceable. T. a. line geminate, fuscous, evenly oblique outwardly. T. p. line geminate fuscous, interrupted, quite faint, evenly bisinuate. A vague, narrow fuscous shade through the centre of the median space. Costal half of basal space paler ash-gray. Claviform wanting. Ordinary spots large, subequal, oblong, oblique, touching, but not quite confluent inferiorly, narrowly fuscous margined, filled with paler gray, reniform somewhat stained with reddish. Beyond the middle of the s. t. space the wing is much paler gray, contrasting against the bluish of the rest of the wing; the irregular faint s. t. line traceable by a powdering of black scales. A series of blackish terminal lunules. Secondaries even, smoky fuscous. Beneath, smoky brown, secondaries pale powdered, both wings with an outer line and discal spot. Expands 1.20 inches; 30 mm.

Hab.—Sierra Nevada, Cal.

A single female specimen from Mr. Hy. Edwards in which the antennæ are lengthily serrate or very shortly pectinated.

The large ordinary spots and discolorous pale terminal space, combined with the generic characters, will render this species easily recognizable.

Stretchia variabilis n. sp.—Ground color dark ash-gray with black powderings. Head and front of collar umber-brown, collar white tipped, with a crested black line. The small thoracic tuftings and the abdominal tufts blackish brown to black. Abdomen dark fuscous. Basal line geminate black, evident. T. a. line pale, geminate on costa, obliquely and regularly outcurved to vein 1, and again outcurved below that vein. T. p. line rather indefinite, inwardly defined by a variably distinct lunate black line, widely outcurved over cell, and as deeply incurved below, so that the median space on inner margin is only half the width through the cell. This median space may be concolorous, only slightly darker, bright umber-brown, or almost black. The claviform is wanting. Orbicular large, rather irregularly oval, oblique. Reniform large, kidney-shaped, both the spots narrowly black ringed, almost concolorous, suffused with reddish, or nearly white, contrasting. S. t. line powdery gray, irregular, vague, marked opposite the anal angle with a more evident blackish lunule, followed by ocherous or paler yellow scales. S. t. space slightly darker costally. A series of small terminal dots, beyond which the fringes are cut with pale gray. There is a short, curved basal black line which does not extend to the t. a. line, and the veins are all black marked. Secondaries whitish, quite heavily black powdered, with soiled veins, a blackish discal lunule, and a blackish marginal line. Beneath pale, with black powderings, the primaries darker, both wings with a dusky outer line and discal lunule; secondaries also with a marginal line. On the primaries the outer line is not complete and may be entirely wanting, and the discal spot varies in size and distinctness. Expands 1.52—1.60 inches; 38—40 mm.

Hab.—Colorado (Bruce).

Several specimens are before me from Mr. Neumoegen and Mr. Bruce, and no two of them are alike. One male bears a deceptive resemblance in maculation to *Valeria grotei*, the dark color and contrasting white ordinary spots causing the likeness, others have a very decided reddish suffusion through the median space and some are entirely concolorous, even, blackish gray.

The ordinary spots are sometimes well separated, usually quite close together, rarely confluent inferiorly. The vestiture is scaly, and in appearance the species is associated with my first group in which the ordinary spots are usually fused. It is readily distinguished from all. The male genitalia are unlike the others of the genus. The harpes are narrow, the tip somewhat produced superiorly. The clasper consists of a corneous hook with a basal short spur.

Stretchia behrensiana Grt.

This species, unknown to me in 1889, I have identified in specimens sent me by Mr. Edwards for name. It agrees well with the description, but varies excessively in distinctness of maculation, in ground color and in the amount of black powdering. The sexual characters are unlike any figured in my Revision (Proc. U. S. Nat. Museum xii, pl. xxii, figs. 1–5), but resemble most nearly those of *normalis*, save that the clasper is double.

In the Verh. k. k. zool.-bot. Gesell. in Wien, 1872, p. 502, Zeller describes *Sedenia (cavifrons) biundulalis*, a Pyralid. He says of it: "*Frons conica, superne cornea, excavata*," using this character to ally it with *cervalis*. The specific diagnosis is short and characteristic: "*Alis albis, anterioribus sericeis, strigis duabus crassis, undulatis, nigris* ♀." The description is full and careful, and, in connection with the figure given on pl. iii, fig. 14, leaves no doubt that the species before me is really that intended by Zeller. The locality, Texas, is also identical. Mr. Grote has omitted the genus, and apparently the species as well, in his List of 1882. A few days ago Mr. Hulst handed me the insect, with the remark that Prof. Fernald said it was a noctuid. A glance at the habitus convinced me that this was so, and that I had a close relative to some forms which had been in my hands for name for some time. Zeller's description points so convincingly to a Pyralid that it could leave no feeling of doubt on the reader. He says, among other matters, that the maxillary palpi are small, brown, resting on the labial palpi. An examination of my specimen shows a curious error, induced probably by the con-

viction that the species must have maxillary palpi. As a matter of fact the supposed palpi are merely the projecting and somewhat thickened edges of a flat, plate-like clypeal process, arising below the frontal tubercle. The single ♀ possessed by Zeller must also have been rather imperfect, since he failed to note the fact that the fore-tibiæ were armed at tip with a long inner and shorter outer spine or claw, though the color and structure are otherwise accurately described.

Referred to the Noctuidæ the relation to *Antaplaga sexseriata* Grt. is at once obvious, and to this genus Zeller's species must be referred, as *A. biundulata* Zell. It differs from the described species in the presence of the clypeal plate below the tubercle, but this will scarcely warrant generic separation. From *A. sexseriata*, which it closely resembles in maculation, it differs in the somewhat heavier bands, and in the absence of the subterminal black dots.

THYREION n. gen.

Body plump, robust, thorax with thin hairy vestiture. Head retracted, front flat; palpi short and weak, scarcely exceeding the front; tongue moderate in length; antennæ of ♂ stout, rather short, with short, thick lateral teeth. Tibiæ spinose, clothed with rather long thin hair; anterior pair abbreviated, broad at tips, with a single long inner claw, and a series of two or more along the outer edge. Primaries proportionately short and small, the costa concave, apices somewhat drawn out, outer margin oblique, scarcely convex outwardly.

This genus is to replace *Aedophron* as used by Mr. Grote. I pointed out eight years ago that Mr. Grote's species *snowi* could not be referred to Lederer's genus, but as I had no specimens I made no change in the reference. Mr. Grote, in his List of 1890, has made no change in the generic location of the species, though he has based a number of new genera on characters pointed out for him by others. The occurrence of a new species, close to *snowi*, enables me to give the above description. The genus *Aedophron* retains as its single American representative, *pallens* Tepper, differing from the European representative as already pointed out by me.

Th. rosea sp. nov.—Head and thorax a rather sordid pale lemon-yellow; abdomen deep blackish gray. Primaries above, yellow to the s. t. space, thence rosy red to the outer margin, receiving an admixture of yellow outwardly; fringes pink; a ray of rosy red extends through the cell, joining the marginal

shade, and a similar ray from the same point extends through the submedian interspace, also joining the marginal band. Secondaries above, a deep blackish gray, with pale rosy fringes. Beneath, primaries deep blackish gray; secondaries paler, flushed with pink along the costa, and a very decided rosy shade extending from the apex along the outer margin nearly to the anal angle. Expands 1 inch; 25 mm.

Hab.—Colorado (Bruce).

The single male from which this description is made is from Mr. Neumoegen's collection, but I think I have seen others, also of Mr. Bruce's collecting, from the same locality. The species should not be difficult to identify.

XANTHODES Gn.

A somewhat peculiar genus, resembling in its form and habitus *Chariclea* and *Aedophron*, but differing in venation, form of palpi, etc. Of medium size, slender, the entire insect somewhat depressed; front with a smooth, horizontally projecting conic tuft; tongue spiral. Eyes large and naked, antennæ thin, bristle-form, in the male with short fine ciliæ. Palpi slender, apparently, from the smooth close vestiture, of equal thickness, converging, somewhat upcurved, then projecting in the form of a snout beyond the palpi. Collar convex close to the dorsum and through the fine hairy vestiture scarcely to be distinguished from it. Abdomen smooth, with thin vestiture. Legs strong, unarmed and closely scaled, only the outside of the tibiæ with dense, woolly, thick hair. Primaries without accessory cell, 6, 7–8 and 9–10 out of the tip of the median cell; broad, with feebly arcuate outer margin. Secondaries with vein 5 weak.

The above is a close translation of Lederer's description of the genus which has been introduced into our fauna by Mr. Grote for his species *Schinia buxea;* the genus *Trileuca* being proposed for *Schinia rectifascia* and *S. gulnare* Strk. In the "Revised Check List" *S. gulnare* is referred to *Lygranthœcia*, to which it does not belong, while *buxea* and *rectifacia* go into *Trileuca* and are referred to the Acontiinæ. *S. gulnare* Mr. Grote did not know, and was, of course, justified in leaving it where its author put it. *Trileuca* may be a good genus, but it does not belong to the Acontiinæ. Its relations are with *Calymnia* and *Cosmia*, or perhaps very near to *Atethmia*. *Xanthodes*, as based on the European type, is unlike either of the species associated with it by Mr. Grote, and I do not know of any American species that could be properly referred to it.

Mr. Grote makes a very touching plea for his genus *Lygranthœcia* in the Proc. Am. Philos. Soc. 1883, 173, but does not show anywhere

that it has any right at all under the laws of priority. Mr. Grote has always been a strict Hübnerian, but now, when one of his genera is to be superseded, it becomes "unjust and against the usual comity and practice!"

But even suppose Hübner's genus should not be adopted, how can we get over Guenée's genus *Tamila* proposed in 1852 with *nundina* as the type? One of the very species which Mr. Grote now includes under *Lygranthœcia!* and why, if "comity" is to be shown, should Boisduval's *Anthœcia* be sacrificed, the very first species being Mr. Grote's present type of *Lygranthœcia*. To be sure the designated types of *Anthœcia* and *Melicleptria* are the same, but "comity" would seem to require that *Anthœcia* should be retained for some species if possible. And why should Hübner be enforced against Boisduval and not against Grote?

For the present I cannot see my way to the use of *Lygranthœcia* in preference to *Schinia* or *Tamila*.

Before describing the species of *Schinia* before me, an ally of *Schinia* (*Trileuca*) *buxea* merits attention.

Trileuca dentalis n. sp. – Head, thorax and primaries a bright glistening lemon-yellow; transverse lines of primaries brown. Basal half line faint. T. a. line well removed from base, with a long outward angle on median vein. T. p. line acutely angulate outwardly, the spur reaching the outer margin below the apex. S. t. line also with an outward angle, reaching the outer margin at the same point with the t. p. line. A small, geminate black dot on costa, just before the apex. Between the point at which the angulation of the outer lines touches the margin and the anal angle, a metallic coppery brown shade fills the space beyond the s. t. line. Secondaries pale yellow, ocherous, more whitish basally. Beneath yellow, powdery, immaculate, the secondaries whitish towards inner margin. Expands 1.40 inches; 35 mm.

Hab.—Southern Texas

A single specimen from Mr. Neumoegen's collection is before me. It has much the same color as *buxea*, but is larger, the course of the lines is different, and there is the coppery brown outer shade, which is distinctive. In maculation and color this is remarkably close to Guenée's *Xanthodes transversa* from India, so close, indeed, that had the species been described from America I had considered the differences within the range of specific variation.

Lygranthœcia parmeliana Hy. Edw.

To the kindness of Mr. Schoenborn I owe a sight of the type. It has the wing form, and exactly the maculation of *nundina*, but the ground is ocher yellowish, the lines white, and the dark markings

are umber-brown, with an olivaceous sheen. The secondaries are yellowish at base, with a broad blackish outer margin. The tibial armature consists of two long inner and three shorter outer claws or spines, referring to *constricta, brevis, errans* and the small species near the foot of my series, with which this form has nothing in common. It is undoubtedly a good and quite remarkable species.

Lygranthœcia roseitincta Harvey.

1875 Bull. Buff. Soc. N. Sci. ii, 278.

Melicleptria exaltata Hy. Edw.

1884 Papilio iv, 124.

This species is now represented in the Museum collection by several specimens. It was not known to me in 1883, when I published my revision of the Heliothini, but was found in the Belfrage material which came to the Museum. Mr. Edwards kindly gave me a specimen of his species, now also in the Museum, and this enabled me to make the above synonymical reference.

The species has the structural features of *Schinia lynx* and its type of maculation, replacing the yellow by bright red throughout.

Mr. Edwards' species is not referred to in Mr. Grote's list of 1890, nor, indeed, any of the following species: *Anthœcia petulans* Edw., *Tamila arefacta* Edw., *Acopa pacifica* Edw., *Melicleptria septentrionalis* Edw., *Heliothis suavis* Edw.,—all described in 1884!

Mr. Grote seems to think, as he said of Boisduval about twenty years ago, that no work has been done since his last descriptive papers.

Schinia sexplagiata n. sp.—Head and thorax dark olivaceous greenish gray. Primaries pale, powdery greenish gray, basal space and costal and marginal patches in s t. space dark, olivaceous, of the same tint as thorax. Basal line marked on costa only. T. a. line pale, well marked, forming a very even and regular outcurve. T. p. line even, pale, narrower than t. a. line, evenly outcurved over the cell, and as evenly though less prominently incurved below. S. t. line pale, not so well marked as the median lines, a little irregular and holding a middle between t. p. line and outer margin in course. A pale line at base of fringes, which are concolorous, interlined with pale. The s. t. space is slightly darker than ground color, except on costa and internal margin, where it is of the same color as the basal space. A vague, dusky, median shade over the reniform, bringing this spot into view as an upright dusky patch not definitely margined. There is a vague suggestion of an orbicular. Secondaries white, with a blackish discal lunule and outer margin, the latter with a white central shade, more prominent toward anal angle; fringes white. Beneath whitish, tinged with faint olivaceous, both wings with a narrow outer line; primaries with black, contrasting reniform and orbicular. Expands 1.04 inches; 26 mm.

Hab.—Foot-hills near Denver, Col. (Bruce).

The front is globose, bulging; fore tibiæ with a long inner and two shorter outer spinules. This species is allied to *biundulata* in general appearance, but differs widely in details. The white secondaries, the contrasting shades of primaries, and conspicuous ordinary spots of the under side, are all good distinctive features. A single good male is in the collection U. S. Nat. Museum, from Mr. Bruce, and this is the type.

Schinia brucei Smith.—Ground color of head, thorax and primaries, a pale luteous, varying in intensity, the maculation varying from ocherous to rusty yellow. Basal line marked on costa, the basal space deepening in color outwardly to the t. a. line, where it is of the richest tint found on the wing. T. a. line pale, whitish inwardly sharply defined by black scales, outwardly diffuse, shading into the ground color of the median space. T. p. line pale, whitish, regularly bisinuate, crenulate and very narrow, sometimes even interrupted opposite the cell; outwardly marked with black scales. S. t. space ocher or rusty yellow brown, sometimes even of an olivaceous tinge. S. t. line pale, broad, diffuse, either evenly parallel to outer margin, or indented opposite the cell, sometimes almost cutting the s. t. space. Terminal space slightly darker than ground color. A series of small, terminal, blackish dots. Fringes concolorous, with dusky terminal dots. A deeper shade of ground color through outer part of median space, narrowed to a line at the hind margin. Reniform large, dusky, with blackish lateral margins, not completely defined; no orbicular. Secondaries whitish, with dusky outer margin, interrupted by an irregular whitish shade behind middle, a moderate discal spot and white fringes. Beneath whitish, with maculation of upper side incompletely reproduced, powdery; primaries with orbicular and reniform usually very distinct. Expands 1.00—1.20 inches; 25—30 mm.

Hab.—Colorado (Bruce).

I have seen quite a number of this species, and four good specimens are in the Museum collection. It is larger than *crenilinea*, though similarly marked, but the armature of the tibiæ allies it to *separata*. From all the forms of that species the character of the median lines will serve to separate it, the color sometimes being very similar.

The species is named after its collector who has found more new species than any other recent field worker in Lepidoptera, and who is as liberal as he is skillful in preparing his specimens.

Schinia diffusa n. sp.—Head, thorax and primaries a vague reddish gray, of a faded, washed-out hue, the maculation on primaries scarcely traceable. Basal and s. t. spaces a shade deeper in color, and thus rendered visible. T. a. line narrow, thread-like, paler, outwardly angulated in the submedian interspace. T. p. line narrow, crenulate, evenly curved to the submedian interspace and there somewhat abruptly incurved. S. t. line faintly marked only at costa, else not traceable. Reniform an indefinite, vague, dusky blotch. Secondaries whitish,

with a faint reddish or yellowish suffusion. Beneath, much as the secondaries above, reddish powdered toward the outer margins. Expands .96—1.08 inches; 24—27 mm.

Hab.—Colorado (Bruce).

Three specimens, male and female, from the collection U. S. Nat. Museum, others in Mr. Neumoegen's collection. The species is allied to *saturata* in tibial armature, and somewhat also in habitus, but the course of the t. a. line is entirely different, and the faded, washed-out appearance is peculiar to this species.

Schinia ochreifascia n. sp.—Head and thorax overlaid by a thick layer of ocherous scales on a white base, the white appearing at tips of collar, patagiæ and thoracic tuftings generally. Primaries white, banded with brownish ocher or tan color. A well defined, moderately broad, even band at basal fourth, the outer margin at about the place usually occupied by the t. a. line. A broader, less definite median fascia, the color less intense, the band broadest at its middle, narrower at inner than at costal margin. A moderately broad fascia of even width, its course slightly sinuate, occupies what is ordinarily the s. t. space. A half band starts from costa at apex and tapers out at about the middle of outer margin. A darker line at base of the white fringes. Claviform and orbicular wanting. Reniform consists of a brown lunule at end of cell, followed by a small spot of the same color just beyond. Secondaries white, shading to ocherous outwardly. Beneath yellowish white, primaries with a submarginal deeper fascia, leaving marginal space somewhat contrasting white. Expands .92 inch.; 23 mm.

Hab.—"July, Kern County, Cal.;" "August, Alameda County, Cal. In flowers of *Proximum californicum*."

Two specimens in the National Museum collection (through C. V. Riley), neither of them in good condition, but together making a very perfect whole. The species has the ground color of *cumatilis*, and the ocherous fasciæ of *chrysellus*, but is utterly unlike either in type of maculation. The front is protuberant, bulging, but not rough, and the armature of the fore tibiæ is comparatively weak and consists of a long inner spine, and a series of shorter outer spines, much as in *cumatilis*, but less claw like.

One specimen has a red ink number 181, which indicates a biological note on the species, in Dr. Riley's possession.

Schinia unimacula n. sp.—Head, thorax and primaries white, markings of the latter of a faint olivaceous clay yellow. Primaries with a broad, curved, sub-basal band, the outer margin limiting the t. a. line, which is followed by a few scales of the same color as the band, indicating its outer margin. Outer portion of median space and all of s. t. space of the same faint olivaceous tint, through which the white t. p. line is evident, starting in a broad costal patch, narrowing to a mere line in its outward curve over the cell and becoming more

obvious on the incurve and at the inner margin. S. t. line marked only by the difference in shade between terminal and s. t. space. This difference is very strongly marked at the costa, then the s. t. space is almost divided by the white, and thence the dark color again widens with an outward curve the division not sharply marked. A row of black terminal dots. Base of fringes olivaceous. Reniform upright, dark, constricted inferiorly, black marked, and more dilated than superiorly; no trace of orbicular. Secondaries white, with a dusky discal spot and indefinite outer border, in which is an ovate white spot. Beneath white, with the maculation of the upper side faintly reproduced. Expands 1.04 inches; 26 mm.

Hab.—Colorado (Bruce).

This is a close ally of *S. vanella*, which it resembles completely in habitus and structure. It differs obviously in the entire lack of the orbicular and claviform in the much smaller reniform and in a general softness of tint and maculation not noted in its eastern congener. The type is from Mr. Neumoegen's collection, and there are three handsome examples in the collection U. S. Nat. Museum, all of Mr. Bruce's collecting.

Schinia bicuspida n. sp.—Head, thorax and primaries luteous. Primaries with maculation darker, more olivaceous, and with an admixture of blackish scales. The transverse lines are all of the palest shade of the ground color, and defined by the difference in shade between the adjoining spaces. T. a. line with a long outward cusp on the median vein, and a deep incurve below the internal vein. Basal space dark, with a pale cusp on the costa, and with a strong admixture of black scales along inner margin, the internal vein pale. S. t. line regularly bisinuate, even, oblique, well defined throughout. S. t. space quite strongly speckled with black scales, especially along the outer margin defining the s. t. line. This latter is deeply and suddenly incurved opposite the cell, then approaches quite close to the outer margin, again indented nearly opposite the anal angle. A row of small blackish terminal spots, from which proceed blackish shades cutting the fringes. Orbicular wanting. Reniform moderate, blackish, quite indefinite; median space crossed by a diffuse dusky shade, faint through the centre, but spreading out and occupying nearly the entire width of the median space inferiorly. Secondaries black, with a broad yellow median band, divided by a large black discal spot; fringes yellow. Beneath, primaries pale yellow, with a broad basal shade, a large discal spot, and a broad subterminal band black; secondaries white, with an incomplete outer band and discal lunule black. Expands .96 inch.; 24 mm.

Hab.—Southern Texas.

The anterior tibia has two stout inner and five stout outer claws, and it is therefore related to *puckardii*, *mortua* and *nobilis*. From all of these it differs in the course of the transverse lines, and the more decided contrasts in maculation. A single specimen from Mr. Neumoegen's collection is before me.

Schinia concisana n. sp.—Head, thorax and ground color of primaries a rather deep luteous, with an olivaceous tint. Primaries maculate with a rather deep, almost chocolate-brown. Basal space brown, deepest at the t. a. line, and merging into the ground color at the extreme base. T. a. line white, prominent, outwardly oblique in two curves to median vein, then inwardly oblique in two further curves to hind margin. T. p. line white, rather strongly and quite evenly bisinuate, well marked, except over the cell, where it is interrupted and punctiform; outwardly it is marked with black scales. S. t. space darkest at t. p. line, lightening somewhat to s. t. line, which is very irregular and marked only by the contrast between the dark s. t. space and the terminal space, which is of the ground color. Fringes of ground color with a series of darker terminal dots. Orbicular wanting; reniform large, dark, somewhat indefinite, obscured by a dusky shade, which crosses the median space and merges into the ground color at either margin. Secondaries obscurely tawny at base, becoming black at outer margin. Fringes pale luteous, almost dirty white. Beneath tawny, primaries with disc black, sending up an ante-apical spot of same color; a black discal spot. Secondaries with a large discal spot and a deeper, brownish black outer margin. Expands .96 inch.; 24 mm.

Hab.—Southern Texas.

This species has two inner and three outer claws to the fore-tibia and is most nearly related to *brevis* Grt. The contrasting white lines, the olivaceous luteous ground color and the course of the lines are different; *brevis* seems not to have the broad median shade. A single specimen from Mr. Neumoegen.

Schinia digitalis n. sp.—Head, thorax and primaries a powdery luteous gray. Primaries with basal and s. t. space darker, with an admixture of blackish scales; median lines narrow, pale. T. a. line evenly outcurved, the curve greatest in the cell. T. p. line very narrow, and but very little sinuate, almost rigidly oblique. S. t. line marked by the difference in shade between s. t. and terminal space, strictly parallel with the outer margin. Fringes dusky. Secondaries a pale yellowish gray with a more blackish outer margin and very faint discal blotch. Beneath, primaries dirty gray, with a faint reproduction of the outer lines of upper side, and a dusky discal spot; secondaries much as above. Expands 1.20 inch.; 30 mm.

Hab.—Dallas, Texas.

This species has heavy inner and four heavy outer claws to the anterior tibia, and is therefore related to *thoreaui* and *rivulosa*, from which it differs radically in the coloration. It is the only species with the heavy armature which has this luteous gray, almost greenish tinge. It bears a deceptive resemblance to *gracilenta*, and the markings, indeed, are almost exactly like it.

A single specimen only at hand, but I feel quite certain that it is in other collections as a faded *gracilenta*.

Schinia biundulata n. sp.—Head white, with a faint olivaceous tinge, much more marked on the thorax; abdomen fuscous. Primaries a faintly green luteous or olivaceous, the terminal space slightly paler, else almost uniform in tint. The median lines are very distinct, broad and white; the t. a. outwardly curved and inwardly marked by a few black scales; t. p. S-shaped, or strongly bisinuate, outwardly relieved by a few black scales. Fringes whitish, uniform in color. Secondaries faintly olivaceous, pale, with an indefinite dark outer band, and a dusky discal spot. Beneath, primaries silver-gray, with the costal and outer margin narrowly yellowish. Secondaries white, with a faint discal spot. Expands .92 inch.; 23 mm.

Hab.—Colorado (Bruce).

This handsome and strongly marked species is allied in structural characters to *trifascia* or *cumatilis*, and is very distinct from anything I have seen.

The single specimen before me is from Mr. Neumoegen's collection, and I do not remember having had others.

Schinia simplex n. sp.—Head, thorax and primaries of a glistening, pale green color; immaculate. Secondaries a very faint ocher yellow, with an indefinite dusky discal spot, and a dusky outer margin, not extending more than two-thirds from apex to anal angle. Beneath, a glistening, pale yellowish white, with an indefinite blackish discal spot on all wings. Expands 1.20—1.28 inch.: 30—32 mm.

Hab.—Colorado.

This species has a single long inner and three feebler outer, claw-like spines to the fore tibia, and it belongs to the series with *trifascia* and *gracilenta*, from all of which it differs in the immaculate primaries. The specimens were collected by Mr. Bruce, and are distributed in a number of collections, including that of the U. S. Nat. Mus. The specimen before me is marked "Denver, Light, July 21, 1887."

In the two specimens in the Museum collection, one, marked "Foot-hills, Colo." has entirely immaculate secondaries; the other specimen is much deeper in color throughout, and the marginal black band is much more distinct, and is complete, extending also along the costa.

Schinia crenilinea n. sp.—Head and thorax yellowish white, the thorax with an admixture of ocherous scales. Primaries whitish, with a strong admixture of ocherous, the maculation with a brown admixture to the ocher. A broad sub-basal, dusky band, outwardly limited by the white t. a. line, which is outwardly curved and irregularly denticulate on the veins, the widest outcurve in the submedian interspace. Inwardly this line is marked by a few black scales, outwardly it is indefinite. T. p. line white, outwardly defined by black scales, crenate, with distinct outward spurs on the veins, its general course feebly bisinuate. S. t. line marked by the difference between the brownish s. t. space

and the even faintly ocherous white of the terminal space. S. t. space strongly constricted opposite cell, less so in the s. m. interspace. A row of very faint terminal dots. An upright dusky median shade, fading gradually to the ground color in each direction. Reniform an indefinite, upright, dusky line. Secondaries pale with a faint reddish tint deepening to a coppery red outer border. Beneath, quite uniform coppery red, the secondaries paler basally, primaries immaculate. Expands .92 inch. ;23 mm.

Hab.—Southern Texas.

This, in its structural characters, resembles *spinosæ*, and in appearance is allied to *separata* and *saturata*, the latter of which it resembles in the crenulate median lines and general tendency of maculation. I presume this would be a *Eupanychis* according to Mr. Grote, if its relation to *spinosæ* be a generic character.

Heliophana obliquata n. sp.—Head and thorax a rather deep clay-yellow, with an olivaceous tinge, almost tawny; abdomen blackish. Primaries above an olivaceous, dark luteous, marked with a somewhat rusty red-brown. There is no distinct t. a. line. An oblique brown shade band extends from the inner margin near base to the end of the median cell, joining the upright somewhat indefinite reniform. From this band a spur of the same color is sent to the base along the internal vein, and another along the median vein. A narrow streak runs also through the cell to the reniform. T. p. line concolorous, even, entirely parallel with the outer margin, marked by a very narrow, indefinite, preceding brown line, and followed and defined by the brown s. t. space. S. t. space uniformly brown, marking the s. t. line by the contrast between it and the terminal space. This line of contrast is irregularly bisinuate. A brown terminal line at the base of the concolorous fringes. Secondaries black, mingled with the tawny yellow basally, the fringes tawny. Beneath, primaries black, costal and outer margin tawny, the former allowing part of a black discal mark to be visible. Secondaries with costal third and centre tawny, else black. A large black discal spot. Expands .75 inch.; 19 mm.

Hab.—Texas (Neumoegen).

I have had several examples of this little species for determination, some of them I think from Colorado, but have not named it anywhere. The characters agree well with those of the genus as given by me (Trans. Am. Ent. Soc. x, 240). It is not impossible that this is an extreme variety of Mr. Grote's species, but both upper and under side differ from the description and from the specimens I have seen. In *mitis* the ground color is dark, while in the present species it is pale; but this reversal does not necessarily indicate absolute difference.

Heliophana amaryllis n. sp.—Head, thorax and abdomen black, with fine, thin, loose, divergent, pale yellowish vestiture. Primaries a dirty grayish brown, median space a dirty yellowish white. Basal line distinct, whitish, margined by black. T. a. line whitish, preceded by a black, and followed by a dark

gray shade; in course it is obtusely angulate on the median vein, and in the slight convexity in the cell, the round orbicular rests on the line. T. p. line whitish, even, widely outcurved over the cell and incurved beneath: defined outwardly by the dark ground color, inwardly by a narrow gray-brown line. The reniform is large, black, filling the entire width of the cell and resting on the incurve of the t. p. line. A narrow dusky shade from the reniform to hind margin close to t. p line. Beyond the t. p. line the wing is uniform in color, somewhat white marked on the veins and crossed by the narrow whitish s. t. line, which is twice outcurved and with three acute inward teeth. Secondaries black, with a broad whitish band, almost divided by the large black discal spot. Beneath, primaries white, with a broad, irregular, black outer border, a broad black basal dash, and a large black reniform, orbicular and subapical spot. Secondaries much as above, but median white band broader. Expands .80 inches; 20 mm.

Hab.—Colton, Cal.

I have seen but a single specimen of this curious insect, received from Mr. W. N. Tallant, Columbus, Ohio, marked collected by G. R. Pilate. It has the habitus of *Melicleptria*, but the structure of the genus to which I have referred it.

STYLOPODA n. gen.

Eyes narrowed, ovate, naked. Head small, not retracted, front somewhat protuberant, conical, but not roughened. Tongue strong, moderate in length. Palpi reaching to middle of front, stout, the terminal joint small, the parts so held as to make the front seem pointed. Antennæ moderate in length, in the ♂ finely ciliated. Thorax plump, robust, vestiture scaly, smooth, forming an indefinite posterior tuft. Legs short and stout, tibiæ not spinose, the spurs long, clothed with long, divergent vestiture, anterior short, broad, flattened and corneous at tip, with a long inner and short outer claw-like spur or process. Abdomen short, conic, untufted. Primaries short, broad, costa somewhat depressed, making the apices prominent.

This genus resembles *Pseudotamila* in structure, save that the tibiæ are not spinose, and the primaries have the costa depressed. Its characters are also like *Pseudacontia*, save that the eyes are narrow, ovate. The genus is recognizable, and unlike any other of our *Heliothid* forms known to me.

Stylopoda cephalica n. sp.—Head, thorax and abdomen deep purplish black. Primaries purplish black to t. p. line, then an irregular white shade fading into the black ground color beyond. The maculation on the purplish ground is picked out by deep black scales. Basal line single, complete. T. a. line single, fine, upright or slightly oblique, very regularly tridentate. T. p. line single, outwardly oblique from costa over reniform, then very deeply indrawn,

narrowing the median space by fully one-half below vein 2. This line is emphasized by the pure white following shade, which is broadest in the submedian interspace, white scales—seeming bluish on the back ground—extending through the subterminal space and on costa, vaguely indicating the s. t. line. An interrupted black terminal line. Claviform apparently wanting. Orbicular moderate, concolorous, round, black-ringed. Reniform incomplete, apparently only the inner margin defined, the outer merged in the white shade. Secondaries black, with white fringes. Beneath black, primaries with an interrupted white band. Expands .68—.72 inches; 17—13 mm.

Hab.—California.

Two specimens (♀) are in the National Museum, one from my old collection, the other "through C. V. Riley, 1888," collected by Coquillet. The latter is perfect so far as maculation goes, but the legs are deficient. The former is somewhat rubbed, and has no legs at all.

This is a strongly marked form which there should not be any difficulty in recognizing.

There is a single male specimen from my collection in the Museum, also from California, which is congeneric, but which is almost too poor to serve as a type. The primaries above have been rubbed almost bare of scales, and no maculation is traceable. The secondaries are black. Beneath, the primaries are carmine-red, the secondaries black. If this is in any collection, I should like to get good specimens.

Pseudaconitia crustaria Morr.

A specimen of what I take to be a form of this species is in the National Museum collection, from Mr. Bruce. It is like the type in pattern of maculation, but the black is replaced by an ocherous brown on primaries, and the median white band of secondaries broadens and becoming inwardly diffuse, lightens the base. The type is from Nebraska, and I have seen no other specimens. It may be we have to do here with another species, but without more material I prefer to leave it as a geographical race or form.

Metoponia macula sp. nov.—Head, thorax and primaries orange-yellow. Head and collar with an admixture of brown. Primaries with a purplish blotch filling the base of discal cell, and narrowly connected along the median vein with a darker, irregular blotch, whose outer margin is about where the t. p. line should be were it present; a small, irregular spot, marks the location of the accessory cell. The inception of the s. t. line is marked by a small, somewhat ferruginous preceding patch, and below that by a series of four or five irregularly separated venular dots. Two dots below the basal purple blotch mark the t. a. line. Fringes cut with purplish. Ordinary spots entirely obsolete

Secondaries uniform blackish with yellow fringes. Beneath, primaries blackish, costa and fringes yellow; secondaries yellowish, with an outer darker line. Expands 1 inch; 25 mm.

Hab.—Las Vegas, N. Mex.

Obviously distinct from the described species by the black secondaries with contrasting yellow fringes. The clypeal structure is a cup-shaped depression, from which rises a cylindrical projection also cupped at tip. Specimens taken by Mr. Meeske are in the collections of Neumoegen and Hulst.

AGROTIPHILA Grt.

This genus was proposed by Mr. Grote (Ann. Lyc. 1875, xi, 107) for Mr. Morrison's *Agrotis montana*, and the genus is, in my opinion, a good one, differing from *Agrotis* in the narrow, reniform eyes, the retracted head and *anartiform* habitus. To this must come *Pachnobia alaskæ* Grt., of which there is a specimen in the U. S. Museum, easily recognizable by the discolorous claviform.

Among the species never recognized by Mr. Grote is Moeschler's *Agrotis staudingeri* (Wien. Ent. Monatsch. vi, 132, pl. 1, fig. 4, May, 1862). To the courtesy of Mr. Moeschler I owed a chance to examine his type, and found it to be in all respects like Morrison's species. The figure is accurate, and there is no doubt at all that *staudingeri* must replace *montana* in the lists.

Morrison described his species from Colorado, July 22d to August 12th, 12,000 feet. Afterward the species was received from Mt. Washington, and Labrador is now added to the distribution. In the collections made by Mr. Bruce there is a species which I at first considered the same as that described by Morrison, but which offers a number of constant points of difference, which I think justify a new species fully congeneric with *staudingeri*.

Agrotiphila colorado n. sp.—Ground color of head, thorax and primaries an olivaceous luteous, or ocherous brown, the variation being quite considerable. Front with a strong admixture of white hair, forming a white margin to the eyes. Collar black centred with a whitish basal and terminal margin. Patagiæ white margined. Abdomen blackish, with fine white or pale yellow hair. Basal line black, single, outwardly margined with white. A curved black streak crossing the basal space on the internal vein, margined above with white, and this with the white inner margin to the t. a. line makes a quadrate space at base, the angles all extended. T. a. line *incurved*, the lower curve long and reaching nearly to the middle of the inner margin. T. p. line with an even outcurve, nearly parallel with outer margin; inner line composed of connected, black lunules, outer line a broad whitish shade. S. t. line white, diffuse, pre-

ceded by a series of more or less confluent sagittate black spots, broadly interrupted subapically. A dusky line at base of fringes. All the veins white marked; a mere trace of claviform. Orbicular large, irregularly oval, black margined, inwardly white ringed, centre pale. Reniform large, kidney-shaped, narrowly black ringed, inwardly white margined, centre pale. The space between these ordinary spots is blackish, and there is a black spur from reniform to t. p. line. Secondaries blackish fuscous to blackish, with white fringes. Beneath whitish, both wings with narrow dusky margins and linear discal spots. Breast blackish, legs with fine, thin, white hair. Antennæ of male with whitish ciliæ. Expands 1.16—1.24 inches; 29—31 mm.

Hab.—Colorado, Bruce.

Both sexes of this species are before me from Mr. Bruce's collections. There is considerable difference in the general appearance of the sexes, though not in details of maculation. The male is the smaller, and is sordid, more pale and less definitely marked; in the female the ground color is deeper, richer, and the white contrasts very much more distinctly.

Compared with *staudingeri*, this species is larger, the claviform is barely marked, and the orbicular is different in shape, large and irregularly oval in this species, small and round in *staudingeri*. The species is in Mr. Neumoegen's collection, and I have seen others from Mr. Bruce. A good pair in the National Museum collection among others.

Agrotiphila rigida n. sp.—Head, thorax and primaries dull fuscous brown, with a yellowish admixture in the basal and s. t. spaces. Front with pale scales intermixed. Basal line evident, black, followed by a white shade. T. a. line rigid, slightly oblique outwardly, white inwardly, margined outwardly by black, which is a little extended on the veins. T. p. line outcurved over cell, thence nearly parallel with outer margin; inner line black, a little outwardly denticulate on the veins, followed by a rather diffuse whitish shade. The veins are pale marked through the s. t. space, and aid in defining the series of dusky, sagittate spots before the s. t. line. This latter is whitish yellow, rather broad, distinct, very even, a little outwardly bent only on veins 3 and 4, a blackish, interrupted terminal line. Claviform rather obscure, incompletely outlined, concolorous, followed by a distinct yellowish shade, which extends to the t. p. line. Orbicular small, oval, slightly oblique, black margined, pale ringed, and with concolorous centre. Reniform moderate, kidney-shaped, pale ringed, with narrow black margin and concolorous centre. Secondaries smoky fuscous, somewhat paler basally, with a dusky discal lunule. Beneath whitish, powdery, with a common, broad, blackish, extra median band; a discal spot on all wings; primaries with a faint, dusky, submarginal band and secondaries, with a dusky outer margin. Expands 1 inch; 25 mm.

Hab.—Colorado (Bruce).

A single specimen of this species, from Mr. Neumoegen's collection, is before me, and is in good condition.

This is one of the most interesting species I have studied, and will not remain in the genus in which I have placed it despite its strong habital resemblance to both *staudingeri* and *colorado*. The eyes, while narrowed, are scarcely as constricted as in the type of the genus, the fore tibiæ are somewhat flattened and very heavily armed, with longer spines at tip, and, finally, the front shows quite a long, conic, corneous projection, which is evident in neither of the other species. It really agrees better with my genus *Chorizagrotis*, but the form is not depressed, the eyes are narrowed, and the frontal protuberance is quite different. It has little or no habital resemblance with *Chorizagrotis*, and I think it best referred for the present to the genus which in appearance it most resembles.

EXPLANATION OF PLATE II.

1.—Harpe and clasper of *Pachnobia cinerascens.*
2.— " " " *Pachnobia elevata.*
3.— " " " *Anorthodes prima.*
4.— " " " *Trichoclea antica.*
5.— " " " *Trichoclea postica.*
6.— " " " *Tæniocampa annulimacula.*
7.— " " " *Tæniocampa pectinata.*
8.— " " " *Stretchia variabilis.*
9.— " " " *Stretchia behrensiana.*
10.— " " " *Perigonica fulminans.*
11.— " " " *Perigonica angulata.*

On the species of TRYPOXYLON inhabiting America North of Mexico.

BY WILLIAM J. FOX.

Through the kindness of Mr. E. T. Cresson, I have had the opportunity of working over this interesting genus of Fossorial Hymenoptera. I do not offer any suggestion as to the proper position of this genus, which has been placed in the Larridæ by most European authors. Mr. Cresson has placed it in the Crabronidæ, where I prefer to leave it for the present at least. Herein eight new species have been described, also two from Cuba and Mexico, respectively, have been added to our fauna. The species are, as a rule, easily distinguished, presenting characters which are readily seen. The types of all the species herein described as new, with the exception of *T. Johnsoni* (which is from my collection), and several of Packard's, will be found in the collection of the American Entomological Society.

The species are distinguished as follows:

FEMALES.

Metanotum not trisulcate.

Abdomen entirely black.

Metanotum punctured.

Wings blue-black; thorax clothed with black pile.....**albitarse.**

Wings with the anterior pair only fuscous, the posterior ones hyaline, except apical margin; thorax with pale pubescence. **albipilosum.**

Wings hyaline, their apical margin and the marginal cell fuscous; thorax and abdomen with silvery pile.....**excavatum.**

Metanotum with an enclosed space.

Anterior portion of clypeus without a carina; wings, except apical margin, hyaline; posterior tarsi, except base and apex, whitish..**clavatum.**

Anterior portion of clypeus with a strong polished carina; wings fuscous; posterior tarsi black.....**projectum.**

Metanotum without enclosed space.

Metathorax sulcate its entire length, more deeply so posteriorly, the fur row somewhat interrupted at apex of metanotum.

Clypeus with a broad, quadrate, tooth medially (fig. 10).....**apicalis.**

Clypeus bidentate (fig. 9).....**bidentatum.**

Metathorax sulcate on its posterior face only; metanotum rugose; clypeus unidentate.....**frigidum.**

Metanotum with a raised disc, which is transversely striated; clypeus armed with a tooth medially; wings entirely hyaline. .....**carinifrons.**

Abdomen banded with reddish.

Metanotum punctate; clypeus emarginate; base of second abdominal segment reddish..... **rubrocinctum.**

Metanotum striated.

Front with a strong projection; anterior half of clypeus strongly carinated. **tridentatum.**

Front with a longitudinal carina above the antennæ.

Antennæ entirely black.

Abdomen with the second segment above only reddish; posterior tarsi whitish medially..... **rufozonalis.**

Abdomen with the apex of first segment, the second entirely and the base of the third reddish..... **arizonense.**

Antennæ, except apical portion, reddish fulvous.

Thorax black, with golden pubescence; dorsulum finely punctured. **texense.**

Collar and metanotum rufous; the dorsulum very strongly punctured. **collinum.**

Metanotum trisulcate; tarsi whitish, the joints of the median and posterior pair, at apex ringed with black..... **Johnsoni.**

MALES.

Metanotum not trisulcate.

Abdomen not banded with reddish.

Metanotum punctate.

Wings blue-black; second abdominal segment beneath with a strong hook or spine..... **neglectum.**

Wings with the anterior pair only fuscous, the posterior pair hyaline except apical margin; thorax with pale pubescence.. **albipilosum.**

Metanotum with an enclosed space; posterior trochanters armed with a spine; posterior tarsi whitish..... **clavatum.**

Metanotum on each side with a strong carina, which ends in a stout projection..... **projectum.**

Metanotum with a raised disc, which is transversely striated. **carinifrons.**

Metanotum with a median furrow.

Legs, except tibial spurs, black; last joint of the antennæ as long as the three preceding ones united..... **frigidum.**

Metanotum not, or but slightly sulcate; last joint of the antennæ shorter than the three preceding ones united..... **bidentatum.**

Abdomen banded with reddish.

Posterior trochanters unarmed.

Metanotum punctate; base of second segment reddish.. **rubrocinctum.**

Metanotum transversely striated, with two strong converging carinæ, which end in two stout projections..... **tridentatum.**

Posterior trochanters armed with a spine.

Antennæ entirely black.

Clypeus emarginate medially; legs entirely black, the posterior tarsi whitish medially..... **rufozonalis.**

Clypeus broadly incurved medially, with a tooth in the middle (see fig. 5); the base of the tibiæ and the posterior tarsi medially, reddish. **spinosum.**

Antennæ, except apical portion, reddish fulvous.
Thorax black, with golden pubescence, the dorsulum finely punctured. **texense.**
Thorax with the collar and the metanotum rufous, the dorsulum very strongly punctured ..... **collinum.**
Metanotum trisulcate.
Fourth joint of the flagellum beneath, excavated at base, and strongly produced at apex; front with two strong diverging carinæ, originating near the base of the antennæ ..... **carinatum.**
Fourth joint of the flagellum normal; front with a slight projection above the antennæ ..... **ornatipes.**

TRYPOXYLON Latr.

Trypoxylon Latr., Préc. Car. Gén. Ins. 1796.
Apius Jur. Nouv. Méth. de Class. Hym. t. i, Hym. p. 140, 1807.

1. **Trypoxylon albitarse** Fab.

T. albitarse Fab., Syst. Piez. p. 180. Nr. 1, 1804.
T. politus Say, Bost. Jour. i, p. 373, Nr. 4, 1837.
T. albitarse Dhlb., Hym. Eur. i, pp. 286 and 509, ♂, 1845.
? *T. albitarse* Lep. Hist. Nat. Ins. Hym. iii, p. 288, Nr. 1, Pl. xxvii, fig. 3. ♀ ♂, 1845.
T. politum Pack., Proc. Ent. Soc. Phila. vi, p. 413, 1867.
T. albitarse Sauss., Reise d. "Novara" Zool. ii, Hym. p. 76, Nr. 1, ♀ ♂ (var. *mexicana*), 1867.

♀.—Black, shining; head and thorax clothed with black pubescence; front strongly and closely punctured, with a rather deep excavation on each side, before the emargination of the eyes, and medially with a somewhat Y-shaped carina; the vertex separated from the posterior ocelli by a furrow or excavation; clypeus strongly produced, with a strong medial carina, finely punctured, the anterior margin having three distinct sides, the medial side slightly incurved, with a very feeble tooth at its lateral angles; the space between the eyes, at top and below, about equal; antennæ reaching to the post-scutellum; thorax finely punctured, more finely so on the sides and beneath; collar deeply and transversely sulcate; the suture between the collar and dorsulum broad and deep; metanotum with a faint medial impressed line, on the posterior face of the metathorax transversely striated, very deeply and broadly channeled medially; wings black, with a violaceous reflection; posterior tarsi, except base and apex whitish. Abdomen smooth, before the apex of the first and second segments above with a transverse impressed line; the venter with sparse long hairs. Length .75—1.00 inch.

♂ unknown to me.

Occurs from Massachusetts to Central America; Brazil (Smith).

2. **Trypoxylon neglectum** Kohl., Pl. iii, figs. 1, 12.

T. neglectum Kohl., Verh. zool.-bot. Ges. Wien. xxxiii, p. 340, pl. 18, fig. 3, ♂.

♂.—Black, shining; front subopaque, with rather strong and close punctures; clypeus strongly carinated, with fine separated punctures, the anterior margin strongly sinuate laterally, in the middle with a rounded projection; antennæ

subclavate, the first joint of the flagellum double the length of the following joint, the apical joint as long as the four preceding ones united; space between the eyes at top equal to the length of the first two joints of the flagellum united beneath the distance is distinctly less. Thorax finely punctured; collar deeply and transversely sulcate; suture between the collar and dorsulum not widely separated; dorsulum with a longitudinal, impressed line on each side near the tegulæ; scutellum with a strong medial impression, the postscutellum feebly so; metathorax as in the preceding species, except that the posterior face is rugose; wings brownish black, without violaceous reflection, hyaline at base; posterior femora beneath, before the apex, with a strong lamina or swelling, the posterior tarsi whitish medially; the medial and posterior coxæ are excavated above. Abdomen smooth, the first segment as long as the two following ones united, much broadened at apex, beneath it is armed with a long hook or curved spine (see fig. 12), before the apex above with a transverse impression; the base of the third segment beneath depressed; the second to seventh segment beneath with a few long stiff hairs. Length .60—.80 inch.

Occurs in Pennsylvania, South Carolina (Kohl); Georgia, Florida, Iowa.

This species closely resembles the preceding, but can be distinguished by the strongly sinuated clypeus and the posterior face of metathorax being rugose.

3. **Trypoxylon albopilosum** n. sp. Pl. iii, fig. 2.

♀.—Black; head and thorax clothed with cinereous pubescence; front convex, subopaque, with strong, close punctures, or being slightly subrugose; vertex, when seen from the front, notched medially, with two lunate tubercles, which connect between the posterior ocelli; the ocelli connected by a furrow, which extends down to a slight projection above the antennæ; eyes from the emargination to the vertex with a distinct margin; face, cheeks and clypeus with bright silvery pubescence; clypeus anteriorly strongly carinated, the anterior margin medially slightly incurved (see fig.); first joint of flagellum not double the length of the succeeding one, the second and third joint about equal. Thorax finely punctured; collar not transversely sulcate; dorsulum with an impressed line near the tegulæ; scutellum and postscutellum impressed medially; metathorax above and on the sides finely punctured, the posterior face with strong transverse striations, strongly sulcate medially, the metanotum before the apex with a shallow depression, which is finely and transversely striated; legs sparsely clothed with sericeous pile, the posterior tarsi whitish, except at base and apex; anterior wings fuliginous, except extreme base, which is hyaline, the posterior wings hyaline, except their apical margin, which is fuscous. Abdomen smooth, shining, with sericeous pile, first segment nearly as long as the two following combined, with two transverse tubercles near the base above, second segment, when seen from the side, with the upper surface bent inward and strongly raised or swollen at base; last segment above with as light carina, medially, clothed sparsely with long brownish hairs. Length .75 inch.

♂. Space between the eyes at top equal to the length of the first joint of flagellum, beneath it is only but slightly wider than the length of the second joint; clypeus not or but slightly produced, the anterior margin medially in-

curved; face, clypeus, inner orbits to the eye emargination, cheeks, and a line extending from the tegulæ downward, bright silvery; second segment of abdomen more strongly bent inward above, but not so strongly raised at base, the sixth and seventh segment slightly carinated. Length .50—.75 inch.

Occurs in Pennsylvania, New Jersey, Virginia, Georgia, Texas, Illinois, Kentucky.

This species can be at once distinguished from either of the two preceding ones by its smaller size, and the thorax being clothed with pale pubescence, and from *clavatum* Say, by not having the enclosed space on metanotum. It also agrees well with the figure of *T. albitarse* Fab. given by Lepelitior de St. Fargeau in his Hist. Nat. Ins. Hym. iii, Pl. 27, fig. 3.

4. **Trypoxylon excavatum** Sm.

T. excavatum Sm., Cat. Hym. Brit. Mus. iv, p. 380, 1856, ♀ ♂.

♀.—Head and thorax clothed with silvery pubescence, more dense and bright from the eye emarginations downward, cheeks, the sutures of the thorax, and the posterior face of the metathorax, laterally; front convex, opaque, subrugose, with a distinct medial impressed line extending from the lower ocellus to a strong projection above the antennæ; vertex not raised or depressed; the anterior and posterior ocelli connected by a strong furrow; eyes from the emargination upward with a distinct margin; clypeus emarginate medially; space between the eyes at top and bottom about equal to the length of the first joint of flagellum; antennæ reaching to the apex of scutellum. Thorax finely and sparsely punctured, the prothorax bispinose beneath; dorsulum with a slight medial impression extending from base to apex; scutellum medially impressed; metanotum with a shallow excavation, which becomes deeper towards the apex, and forms into a deep sulcus on the posterior face of metathorax, the excavation with very fine transverse striations at its apex; wings hyaline, except their apical margin and the marginal cell, which are fuscous; legs entirely black, covered with sericeous pile. Abdomen smooth, shining, clothed with sericeous pile, which is more obvious and silvery on the basal half of the segments; first segment scarcely tumid at apex, about one-third longer than the succeeding one; the third segment slightly concave beneath. Length .45 inch.

♂.—Differs from the ♀ by its smaller size; the narrower front, the space between the eyes being less beneath than above; the clypeus being more strongly emarginate, and the third segment being bituberculate beneath. Length .38 inch.

Occurs in Cuba, Jamaica (*Smith, Fox*), New York and Illinois.

This species can be distinguished by the silvery ornamentation of the head and thorax.

5. **Trypoxylon clavatum** Say. Pl. iii, fig. 13.

T. clavatus Say, Bost. Jour. i, p. 374, ♀ ♂, 1837.

T. clavatum Pack., Proc. Ent. Soc. Phila. vi, p. 414, ♀.

♀.—Front convex, strongly punctured, with a medial impression extending from lower ocellus to a projection above the antennæ; anterior and posterior

ocelli connected by a furrow: vertex with two smooth, polished tubercles; eyes from the emargination upward with a distinct margin; clypeus emarginate; space between the eyes at top equal to the length of the second and third antennal joints united, beneath it is about equal to the length of the first joint of the flagellum; from the emargination of the eyes downward, the cheeks, sutures of the thorax, and posterior face of metathorax, silvery. Thorax shining, finely punctured, sparsely clothed with pale pubescence; scutellum and postscutellum not impressed medially; metathorax above with an irregularly striated, enclosed space, the posterior face strongly furrowed medially, strongly rugose; wings hyaline, apical margin fuscous; legs with sericeous pile, the posterior tarsi whitish, except base and apex; first segment of abdomen about one-third longer than the following one, the apex strongly raised above the base of second segment, the second segment at apex slightly raised above the base of the following segment. Length .45—.50 inch.

♂.—Differs from the ♀ by the narrower front, the length of the last joint of antennæ is equal to the three preceding joints united, and by the posterior trochanters being armed with a spine. Length .45—.50 inch.

Occurs from Canada (*Provancher*) to Texas.

6. **Trypoxylon projectum** n. sp.

♀.—Front with strong, separated punctures, with a medial impression, very strongly produced above the antennæ into a projection; eyes from the emargination upward with a distinct margin; space between the eyes at the vertex equal to the length of the second and third joints of the flagellum united, beneath it is slightly less; the second joint of the flagellum more than half as long as the preceding one; clypeus, except at base, with a strong medial carina, the anterior margin acutely emarginate, with a slight tooth on each side of the emargination; from the emargination of the eyes downward, the posterior orbits, sutures of the thorax and posterior face of metathorax, laterally, with silvery pubescence. Thorax finely and sparsely punctured, clothed with short, pale pubescence; dorsulum with a lateral impressed line near the tegulæ; metanotum transversely striated, with a strong, curved carina on each side, a deep sulcus begins between the apices of the carinæ and extends down on the posterior face, which is rugose, to the apex; wings fusco-hyaline, with darker apical margins; posterior tarsi whitish medially. Abdomen with the first segment strongly tumid at apex, not much longer than the following segment; the third segment slightly raised at base above. Length .60 inch.

♂.—Differs from the ♀ by having the clypeus more broadly emarginate, the first joint of the flagellum being slightly longer than the two following ones united and the apical joint being as long as the three preceding ones together; space between the eyes at vertex equal to the length of the first and second joints of the flagellum united, beneath it is slightly less; the carina of the metanotum end in two stout projections, the posterior face of metathorax coarsely and transversely striated; the tarsi all more or less whitish. Length .50 inch.

Occurs in Louisiana; Florida (*C. W. Johnson*).

Differs from the preceding species by its stouter legs, carinated metanotum and the stout frontal projection.

7. **Trypoxylon carinifrons** n. sp.

♀.—Black; front coriaceous, convex, with a short, distinct, longitudinal carina above the antennæ; the anterior ocellus situated in a rather deep pit, from which originates a strong impressed line, which extends down to the frontal carina; clypeus with a slight mesial tooth; space between the eyes at the vertex equal to the length of the first, second and third joints of the flagellum united, beneath is equal to the length of the second and third joints of the antennæ united; antennæ clavate, second joint of the flagellum more than half as long as the preceding joint, the apical joint nearly as long as the two preceding ones united; mandibles reddish; vertex finely punctured; from the emargination of the eyes downwards, the cheeks, suture between collar and dorsulum, sides of thorax and the metathorax, posteriorly, with bright silvery pubescence. Thorax finely punctured, the dorsulum shining, with a short, oblique, deep, impressed line on each side near the tegulæ; scutellum not impressed medially, shining; metanotum with a shield-shaped, somewhat elevated disc, which covers almost its entire surface, the disc finely and transversely striated, sulcate medially, the posterior face of metathorax with a medial sulcus, which is much deeper at the base, subrugoso-striate; wings hyaline throughout, the stigma and nervures brownish, except at base, where, together with the tegulæ, they are yellowish. Legs black, the tarsi fuscous, the tibial spurs slightly whitish. Abdomen smooth, the base of the second to fifth segment with sericeous pile; first and second segments of nearly equal length, the first the longest. Length .25 inch.

♂.—Differs from the ♀ by the antennæ being very strongly thickened from the ninth joint, the apical one being acute at tip and as long as the four preceding ones together; the clypeus is more strongly dentate; the legs are brownish, with the tarsi slightly marked with whitish. Length .25 inch.

Occurs in Texas.

Closely allied to *T. chichimecum* Sauss. from Mexico, but the clypeus is not emarginate, as in that species.

8. **Trypoxylon apicalis** n. sp. Pl. iii, fig. 10.

♀.—Front subopaque, slightly roughened, with a distint, medial, impressed, glabrous line extending from lower ocellus to a slight projection above the antennæ; the anterior ocellus situated in a slight pit, the vertex excavated or depressed behind the posterior ocelli; clypeus rather broadly produced medially, the production somewhat incurved; antennæ not clavate, the first joint of the flagellum about one-third longer than the second one; face, clypeus, cheeks, thorax on the sides and beneath, with silvery pubescence. Thorax very finely punctured; collar with a transverse sulcus; dorsulum without lateral impressed lines; scutellum impressed medially, the postscutellum feebly so; metanotum sulcate medially, obliquely striate; the posterior face finely punctured, sulcate medially, the sulcus being much broader and deeper at the base; wings hyaline, their apical margin fuscous, tegulæ and mandibles ferruginous; legs black, the femora and tibiæ sparsely clothed with silvery pile, the spines of the tibiæ ferruginous or brownish; tarsi fuscous. Abdomen smooth, shining; first segment strongly sulcate above, on its basal half, and is about one-third longer than the following segment; the last segment clothed beneath with sparse long hairs. Length .18 inch.

Occurs in Canada, and at Beverly, Mass. It is larger than either of the two following species, to which it is related.

9. **Trypoxylon frigidum** Sm.

T. frigidum Sm., Cat. Hym. Brit. Mus. iv, p. 381, 1856, ♀.

T. frigidum Pack., Proc. Ent. Soc. Phila. vi, p. 415, 1867, ♂.

♀.—Front coriaceous, slightly roughened, with an impressed line extending from lower ocellus, which is situated in a pit, to a strong frontal projection above the antennæ; clypeus with a large quadrate tooth medially; first and second joints of the flagellum about equal; space between the eyes at the top equal to the length of the first and second joint of the flagellum united; beneath, it is a little less: face, clypeus, cheeks and the thorax on the sides and beneath with silvery pubescence. Thorax with exceedingly fine punctures; the collar with a transverse sulcus, which is interrupted medially; dorsulum with an impressed line on each side near the tegulæ; scutellum and postscutellum not impressed; metanotum with strong, slightly oblique striations, with a slight medial impression; posterior face of metathorax with a strong sulcus, which is very broad and deep at the base; wings hyaline, their apical margin slightly fuscous; tegulæ and mandibles ferruginous; legs black, with sparse silvery pile, the tarsi fuscous, the tibial spurs reddish brown or whitish. Abdomen smooth, shining, the first segment strongly sulcate above, on its basal half, and is about one-third longer than the succeeding segment. Length .30 inch.

♂.—Differs from the ♀ by having the last joint of the antennæ as long as the three preceding ones united; the clypeal tooth is indistinct, and the wings are strongly iridescent. Length .30 inch.

Occurs from Hudson's Bay (Smith) to Virginia, westward to Mt. Hood, Oregon.

10. **Trypoxylon bidentatum** n. sp. Pl. iii, fig. 9.

♀.—Closely resembles the preceding species, but is distinct by having the clypeus bidentate medially; the second joint of the flagellum shorter than the first; the metathorax strongly sulcate above and on its posterior face; the tibial spurs black; the wings are strongly iridescent, fusco-hyaline. Length .25—.30 inch.

♂.—The apical joint of the antennæ as long as the four preceding joints united; the first segment is more linear than in the ♀, and the clypeal teeth not so distinct. Length .25 inch.

Occurs with the preceding.

11. **Trypoxylon rubrocinctum** Pack. Pl. iii, fig. 7.

T. rubrocinctum Pack., Proc. Ent. Soc. Phila. vi, p. 416, ♀, 1867.

♀.—Front convex, rugosely punctured, with a medial impressed line extending from lower ocellus to a strong projection above the antennæ; vertex depressed medially; clypeus strongly emarginate; first joint of flagellum a little more than one-third longer than the second joint; space between the eyes at the vertex equal to the length of the first joint of the flagellum, beneath it is a little less; eyes from the emargination upward with a distinct margin; mandibles, tegulæ, femora at apex, the tarsi at base, and the basal half of the second segment above, and beneath entirely reddish fulvous; from the emargination of the

eyes downwards, cheeks, sutures between collar and dorsulum, line on ple and the metathorax posteriorly, with silvery pubescence. Thorax shining, fine separated punctures; scutellum and postscutellum medially impre metanotum finely punctured, with a strong excavation posteriorly, from w begins a deep sulcus, extending down to the apex of metathorax, the pos face strongly rugose; wings hyaline, the apical margin slightly fuscous, t spurs whitish. Abdomen shining, the first and second segments petioliform first segment about one-third longer than the second, with two transverse t cles near the base above. Length .40 inch.

♂.—Differs from the ♀ as follows: Antennæ thickened toward the apex first joint of the flagellum nearly twice the length of the following joint; between the eyes at top equal to the length of the second and third joints o antennæ united, beneath it is less than the length of the first joint of th gellum. Length .35—.40 inch.

Occurs from New York to Florida.

Can be at once distinguished from *tridentatum* by having the anotum punctured.

12. **Trypoxylon tridentatum** Pack. Pl. iii, fig. 4.
T. tridentatum Pack., Proc. Ent. Soc. Phila. vi, p. 417, ♀, 1867.

♀.—Front with strongly separated punctures, rather deeply impressed dially, the impression extending from the lower ocellus to a very strong jection above the antennæ; vertex impressed medially; clypeus very str carinated on its anterior half, emarginate medially, the sides of the emargin produced into a slight tooth; mandibles obscurely rufous; the second joi the flagellum more than half the length of the preceding joint, the second third joint nearly equal; space between the eyes at vertex less than the le of first and second joints of the flagellum united, beneath it is about equ the length of the second and third joints of the flagellum; eyes from the e gination to the vertex with a strong margin; from the emargination of th downwards, thorax on the sides and beneath, and the sutures of the thorax silvery pubescence. Thorax shining, finely and distinctly punctured; dors very slightly impressed laterally; scutellum and postscutellum not impr medially; metathorax transversely striated, above with two strong, cu converging carinæ, with a medial impression, the furrow extending down t apex of, and is much stronger on, the posterior face; wings hyaline, the a margin fuscous, the nervures blackish; legs with sericeous pile, the post tarsi whitish medially, the anterior tibiæ rufous at base; first and second ments reddish, the former black above, and about one-fifth longer than second, which is very slightly raised at base; the remaining segments s with silvery pile in certain lights. Length .45—.55 inch.

♂.—First joint of the flagellum more than twice the length of the succee one, the apical joint slightly longer than the three preceding ones united; scarcely impressed; the carinæ on the metathorax strongly projecting. Le .50—.55 inch.

Occurs throughout the United States. Specimens from New Y Texas, Montana, California.

13. **Trypoxylon rufozonalis** n. sp. Pl. iii, fig. 3.

♀. Black, shining; front strongly and rugosely punctured, strongly impressed medially, with a short longitudinal carina above the antennæ; clypeus fine punctured, roundly emarginate medially, slightly carinated anteriorly; vertex depressed medially; space between the eyes at vertex and beneath, equal to the length of the second and third antennal joints united; head and thorax in the usual places with silvery pubescence. Thorax finely punctured; dorsulum with a strong, short, impressed line on each side; postscutellum slightly impressed medially; metathorax above with an enclosed space, which is transversely and obliquely striated, the posterior face rugose, strongly channeled medially; legs black, the posterior tarsi whitish medially; wings hyaline, apical margin fuscous, the nervures brownish; first segment of abdomen about one-third longer than the second, the latter strongly raised at base; first segment black, reddish along the sides, the second segment entirely reddish, the rest of the abdomen black, the third segment has a reddish spot on the sides. Length .55 inch.

♂.—First joint of flagellum more than twice the length of the following joint, the apical joint as long as the three preceding ones united; clypeus more broadly emarginate than in the ♀, not carinated; posterior trochanters armed with a spine, the posterior tarsi whitish, except at base and apex; first segment of abdomen more than one-third longer than the following one, which is not raised at base. Length .55 inch.

Occurs in Colorado.

14. **Trypoxylon arizonense** n. sp. Pl. iii, fig. 13.

♀.—Front strongly punctured, medially impressed, with a short longitudinal carina above the antennæ; vertex not or but slightly depressed medially; eyes from the emargination to the vertex with a distinct margin; clypeus emarginate medially, not carinated; first joint of the flagellum nearly twice the length of following joint; space between the eyes at vertex the same as in the preceding species, beneath it is a little less; mandibles rufous; head and thorax with silvery pubescence, more obvious from the emargination of the eyes downwards, cheeks, sutures of the thorax, on the sides and beneath and the metathorax. Thorax finely punctured, shining; metathorax with fine transverse striations; the metanotum with a strong depression, from which begins a strong medial channel, which extends to the apex of metathorax; wings hyaline, apical margin fuscous, the nervures brown; legs black, the tibiæ and tarsi clothed with sericeous pile, more strongly so on the tarsi; tegulæ fulvous; the first, second and base of the third segment reddish, the first segment on the basal two-thirds above, black; second segment strongly raised at base. Length .55 inch.

Occurs in Arizona.

15. **Trypoxylon spinosum** Cam. Pl. iii, figs. 5, 6.

T. spinosa Cameron, Biol. Cent. Am. Hym. ii, p. 46, Pl. iv, figs. 8, 8*a*, 8*b*, ♂.

♂.—Black, shining; front coarsely punctured, medially impressed, above the antennæ with a short longitudinal carina; space between the eyes at vertex a little broader than the first joint of the flagellum is long, beneath it is equal to the length of the second and third joints of the flagellum united; first joint of the flagellum twice the length of the following joint, slightly longer than the second and third joints united, last joint a little longer than the two preceding ones united; clypeus broadly incurved medially, with a tooth in the middle of the incurvation; from the emargination of the eyes downwards the cheeks and sutures of the thorax and the metathorax with golden pubescence, the thorax on sides and beneath with silvery pubescence. Thorax finely punctured; meta-

thorax above finely punctured, excavated toward the truncation, a strong furrow extends from the apex of the excavation to the apex of metathorax; posterior trochanters armed with a spine; posterior tarsi whitish medially; wings fulvous, the apical margin darker. Abdomen clothed with golden pile, the first segment one-third longer than the second, which has the basal half reddish, and not raised at base. Length .52 inch.

Occurs in Texas and Mexico.

16. **Trypoxylon texense** Sauss. Pl. iii, fig. 8.

T. texense Sauss., Reise d. "Novara." Zool. ii, Hym. p. 77, ♀, 1867.

♀.—Front strongly punctured, medially impressed, with a carinæ above the antennæ; first joint of flagellum almost twice the length of the following joint; space between the eyes at the top equal to the length of the second and third joints of the antennæ united, beneath it is slightly less; clypeus as in the preceding species; vertex depressed medially; first five joints of the antennæ, mandibles, tegulæ, the anterior and medial femora at apex, the coxæ and trochanters at apex, tibiæ, tarsi and first two segments of the abdomen, reddish brown; the first segment above with a brownish stain on basal portion; from the eye emargination downward, cheeks, sutures of the thorax, on the sides and beneath and the metathorax with golden pubescence. Thorax shining, finely punctured, the dorsulum with an impressed line on each side; metanotum with a V-shaped enclosure, which is finely and transversely striated, the enclosure open at apex, from which begins a strong sulcus, which extends to the apex of metathorax, the latter on the sides and posteriorly, rugose; wings golden, nervures yellowish; legs with golden pile; first segment sulcate above, on its basal half, about one-third longer than the following segment, which is not raised at base; the apical margins of segments 3-6 golden; all the segments clothed with golden pile. Length .52 inch.

♂.—Front very finely and closely punctured, clypeus armed with three teeth, the outer one acute, the medial one rounded (see fig.); first joint of the flagellum as long as the two following ones united; scutellum with a distinct medial impressed line; the apex of the metanotum laterally, strongly produced or carinated; posterior trochanters armed with a spine; first and second segments of the abdomen about equal in length, the first at apex scarcely raised above the base of the second, which has a transverse impressed line before its apex. Length .58 inch.

Occurs in Texas. I may be mistaken in regard to the ♂ of this species, as the specimens described herein as the ♂ are much larger, and the characters so much different from those of the ♀.

17. **Trypoxylon collinum** Sm.

T. collinum Sm., Cat. Hym. Brit. Mus. iv, p. 381, ♀, 1856.

T. collinum Pack., Proc. Ent. Soc. Phila. vi, p. 415, ♀ ♂, 1867.

♀.—Front strongly punctured, medially impressed, with a slight carinæ above the antennæ; vertex depressed medially; space between the eyes at vertex equal to the length of the second and third joints of the antennæ united, beneath it is equal to the length of the first joint of the flagellum; clypeus emarginate medially; first eight joints of the antennæ, anterior portion of clypeus, except the margin, mandibles, except apex, prothorax, tegulæ, metanotum, legs and the first two segments of the abdomen, reddish; face, clypeus, suture between the collar and dorsulum, and the thorax beneath sparsely clothed with golden pubes-

cence, the cheeks and a line beneath the tegulæ, silvery. Thorax strongly punctured; scutellum slightly impressed medially; metanotum with a V-shaped enclosure, which is strongly rugose, the posterior face strongly channeled medially; wings strongly fuscous, hyaline at their extreme base; first segment of the abdomen about one-third longer than the second, which is strongly raised at base. Length .55 - .60 inch.

♂.—Differs from the ♀ by having the first joint of the flagellum slightly longer than the two following ones united, the apical joint as long as the three preceding joints together; the enclosed space on the metanotum is strongly and transversely striated, and the posterior trochanters are armed with a spine. Length .55 inch.

Occurs in Florida. Easily distinguished by red collar and metanotum.

18. **Trypoxylon carinatum** Say.

T. carinatus Say, Bost. Journ. i, p. 374, ♂.

♂.—Front coriaceous, very finely punctured, slightly concave, with a medial impressed line, extending from lower ocellus to the angle of sharp diverging carina, situated above the antennæ; the ocelli situated in slight depressions or pits, the pit in which the anterior ocellus is situated much more distinct; when seen from above the front has the appearance of being produced into a very acute angle; clypeus slightly incurved medially or subtruncate; first and second joints of the flagellum about equal, the fourth joint beneath, at the apex, excavated, the apex strongly produced; the apical joint as long as the two preceding ones united; space between the eyes at the top equal to the length of the three basal joints of the flagellum united, beneath it is distinctly less; face, clypeus, cheeks, suture between collar and dorsulum, the thorax beneath and the metathorax posteriorly sparsely so, with silvery pubescence. Thorax finely punctured; the scutellum and postscutellum not impressed medially; metanotum trisulcate above, the lateral furrows oblique, on the posterior face with a deep medial channel above with exceedingly fine, slightly oblique striæ; wings hyaline, nervures and stigma dark brown; outer margin of tegulæ, the anterior femora in part, the tibiæ and tarsi entirely, the posterior and medial tibiæ at the base and the medial tarsi, whitish; the greater part of the tegulæ and the mandibles ferruginous. Abdomen shining, the first segment but slightly longer than the following one, and deeply sulcate on the basal half above, the sulcus broader and deeper at the base. Length .30 inch.

Occurs in "Indiana" (Say). A specimen before me without locality. Probably from Illinois.

19. **Trypoxylon Johnsoni** n. sp.

♀.—Front convex, flattened medially, without medial impressed line, subrugose, with a strong carina above the antennæ; the ocelli situated in depressions, the anterior one most distinct; clypeus incurved medially; first joint of the flagellum about one-fifth longer than the following joint; space between the eyes at the vertex equal to the length of the second and third joints of the antennæ united, beneath it is equal to the length of the second joint of the flagellum; inner orbits from the emargination of the eyes downwards, the face, clypeus, cheeks, suture between the collar and dorsulum, sides of thorax and the metathorax on the sides with silvery pubescence; scape anteriorly, the mandibles, the anterior femora in part, and the base of the second and third segments of the abdomen reddish fulvous; the tegulæ, the anterior tibiæ and tarsi entirely, the base of the medial and posterior femora and the joints of the tarsi, except apex, whitish, the rest of the anterior and posterior legs reddish brown, the

posterior pair black. Thorax finely punctured, the dorsulum with a short impressed line on each side; metanotum with fine transverse striations, trisulcate, the median sulcus longest and broadest, the posterior face deeply sulcate medially; wings hyaline, nervures and stigma black. Abdomen shining, the first segment sulcate above on its basal half, about one-third longer than the following segment. Length .38 inch.

Occurs in Florida. Collected by C. W. Johnson.

20. **Trypoxylon ornatipes** n. sp.

♂.—Front subopaque, convex, with a medial impressed line extending from lower ocellus to a slight longitudinal carina above the antennæ; the anterior ocellus placed in a deep pit; clypeus with a small quadrate tooth medially; the last joint of the antennæ equal to the four preceding joints united; the scape in front, the tegulæ, the anterior and posterior legs and the basal portion of second segment on the sides and beneath fulvous, the base of the posterior femora and the joints of the tarsi at base whitish, the rest of the legs black or brownish. Thorax finely punctured; metathorax trisulcate above, the medial furrow broader than the lateral ones, which are somewhat indistinct and much shorter than the medial one, the mesonotum shining, transversely striated, the posterior face very deeply and broadly channeled medially; wings hyaline, iridescent. Abdomen shining; the first segment at least one-third longer than the following segment, above strongly sulcate medially, the sulcus interrupted between the middle and apex. Length .28 inch.

Occurs in the District of Columbia.

The cocoon of this species is cylindrical, rounded at each end, and about .40 inch. in length. This may be the ♂ of *T. Johnsoni*.

Unidentified Species.

T. californicum Sauss., Reise d. Novara. Zool. ii, Hym. p. 78, ♀, 1867. Cal.

T. pennsylvanicum Sauss., ibid. p. 82, ♀. Penn.

T. striatum Prov., Add. Hym. Queb. p. 283, ♀. (Pub. in Le Nat. Canadien.) Can.

T. sulcus La Munyon, Proc. Nebr. Asso. Ad. Sc. March, '77 (= *texense?*). Nebr.

T. unicolor Bol., Ins. Afr. et Amer. p. 116, Hym. Pl. iii, fig. 3. This probably does not belong to this genus. Car.

T. xantianum Sauss., l. c. p. 78, ♂ ♀, 1867. L. Cal.

EXPLANATION OF PLATE III.

Fig. 1.—Head, showing clypeus of *T. neglectum*.
" 2.—Head of *T. albipilosum*.
" 3.—Head, from above, of *T. rufozonalis* and *T. arizonense*.
" 4.—Head, from above, of *T. tridentatum*.
" 5.—Head, showing clypeus of *T. spinosum*.
" 6.—Abdomen from the side, of *T. spinosum*.
" 7.—Abdomen, from the side, of *T. rubrocinctum*.
" 8.—Anterior margin of clypeus of *T. texense*, ♂.
" 9.—Anterior margin of clypeus of *T. bidentatum*.
" 10.—Anterior margin of clypeus of *T. apicalis*.
" 11.—Posterior leg of *T. clavatum* ♂, showing spined trochanter.
" 12.—First abdominal segment of *T. neglectum*, from the side.
" 13.—First two abdominal segments of *T. arizonense*, and *rufozonalis*, ♀, from the side.

A revision of the species of Euclea, Parasa and Packardia, with notes on Adoneta, Monoleuca and Varina ornata Neum.

BY HARRISON G. DYAR.

Genus **EUCLEA** Hüb.

1816. —*Euclea* Hüb., Verz. bek. Schmett., 149.
1860.—*Nochelia* Clem., Proc. Acad. Nat. Sci., 160.
1864.—*Euclea* Packard, Proc. Ent. Soc. Phil. iii, 336.

Genus **PARASA** Moore.

1854.—*Nezera* Her.-Sch., Samml. Ansser. Schmett., 176.
1859.—*Parasa* Moore, Cat. Lep. Ins. East India Co., 413.
1864.—*Callochlora* Pack., Proc Ent. Soc. Phil. iii, 339.

These genera are separable by the following characters. In *Euclea* the second subcostal venule arises just beyond the end of the discal cell, remote from the origin of the first subcostal, while the first and second median venules arise as far apart as the second and third; in *Parasa* the second subcostal venule arises just within the cell, close to the first subcostal, and the first and second median venules arise almost from a common point. Otherwise the venation is the same. In the fore wings the s.-c. vein is remote from the costa and the costal arises from its base; five s.-c. nervules, the origins of the third and fifth approximately trisecting the vein beyond the cell; discal cross-vein twice angulated, the independent vein arising from its upper third; a bifid false discal vein; median four-branched; submedian present; internal bifid at base. The hind wings have the same venation in both genera.

Mr. E. L. Graef has very kindly loaned me his specimens of these genera which comprise nearly all the species, and, from an examination of them, I have been enabled to complete this paper. The species may be separated in the following manner:

Thorax brown.....Genus **Euclea.**
  Green of primaries not covering cell.
    Spots rounded, discal dot round.....**nana** Dyar.
    Spots angular, discal dot elongated.
      A ferruginous patch beyond subterminal line.....**ferruginea** Pack.
      No such patch.....**cippus** Cram.
        Green confined to small basal and subapical spots...var. **delphinii** Bd.
          Basal patch larger, bifid.....var. **quercetі** H.-S.
          Patches connected by a row of dots.....var. **interjecta** Dyar.
        Green forming continuous band.....var. **monitor** Pack.
  Green of primaries covering cell.
    Sinus above internal margin distinct, filled in with rust-red.
      Discal dot present.....**elliotii** Pears.
      Discal dot absent.....**pænulata** Clem.
    Sinus obsolescent, not discolored.....**incisa** Harv.
Thorax green.....Genus **Parasa.**
  Breadth of green band over one-third the length of costa.....**viridus** Beak.
  Less than one-third.....**chloris** H.-S.

Euclea nana n. sp. (Plate iv, fig. 15).

Primaries: costa straight, apex subacute, outer margin convex, inner margin nearly straight, then rounded to base. Dark glossy walnut-brown, darker than *cippus* (of the same color as some Florida examples of *cippus*), a very small round black discal dot in the cell, not elongated as in *cippus*. Two pea-green patches of considerable size, both rounded and edged outwardly and below with silvery white and black. The larger patch occupies the space below the cell, not reaching the base of the wing and narrowly separated from the internal margin, rectangularly excavated opposite the outer third of the margin, the sinus partly filled in with a patch of orange ferruginous scales that tends to be bisected on the submedian vein. The patch extends beyond the end of the green patch, reaching the obsolete subterminal line, which is lost in the ground color. The other green patch is almost circular, in one example produced inwardly a little above the discal dot. It is very narrowly separated from the first patch and almost reaches the costa. It represents the subapical patch of *cippus*, but shows no tendency to become divided. It is followed by the usual orange ferruginous patch, trisected by the nervules and reaching the obsolete subterminal line. Fringes concolorous with primaries, interlined with paler at the base. Secondaries scarcely paler than primaries, concolorous. Below, concolorous with secondaries above, paler along internal margin of primaries and base of fringe. The thorax is dark like the fore wings, as in the basal tuft and tip of abdomen. Expanse of wings 18—20 mm.

Hab.—Florida. Types, two males, in the collection of Mr. Graef.

I cannot find that this species has been figured or described before. I have seen it in collections labeled *querceti* and *quercicola*, but it does not correspond at all with Herrich-Schäffer's figure of these forms. It differs from *E. cippus* var. *monitor* in its smaller size, round, minute, discal dot; the green spots being rounded and not triangular, the lower elliptical, less deeply excavated than in *cippus*, the upper almost circular, not divided. The red patches are smaller than in *cippus*, and are distinctly divided by the veins.

Euclea ferruginea Packard.

1864. Pack. Proc. Ent. Soc. Phil. iii, 338.

This species is marked like *E. var. delphinii*, but has in addition a ferruginous patch beyond the subterminal band. It is closely allied to *E. cippus*.

The following is Dr. Packard's description:

"♂ more reddish than the other species. . . . Basal green spot small, slightly indented externally. Middle subapical spot" [of the three subapical green spots which are very variable, often confluent] "large; lower one obsolete, with a few scales connecting it with the reddish discal spot, which is margined above with brown. Beyond the green spots the wing is suffused with rust-red, of a lighter blue than any of the other species. Outer edge darker, like the costa. Beneath both wings are alike, almost testaceous. Fringe brown." Habitat, Canada. Expanse 30 mm.

The larva is unknown.

Euclea cippus Cramer (Plate iv, figs. 1-11).

1779.—Cram., Pap. Exot. i, 84. pl. liii. fig. E, *delphinii* Boisduval.

1832.—Bd., Cuvier's An. King. (Griffith) pl. ciii, fig. 6, *strigata* Boisduval.

1832.—Bd., Cuvier's An. King. (Griffith) pl. ciii, fig. 7 (larva) *querceti* Her.-Sch.

1854.—Her.-Sch., Samml. Auss. Schmett. fig. 174, *quercicola* Herrich-Schäffer.

1854.—Her.-Sch., Samml. Auss. Schmett. fig. 175, *tardigrada* Clemens.

1860.—Clem., Proc. Acad. Nat. Sci. 160, *Nochelia* monitor* Packard.

1864.—Pack., Proc. Ent. Soc. Phil. iii, 327.

1881.—French, Papilio i, 145 (larva). *bifida* Packard.

1864.—Pack., Proc. Ent. Soc. Phil. iii, 338.

Thorax and primaries dark brown (burnt umber), occasionally russet or dark glossy walnut-brown (the latter color is exemplified in a specimen from Florida before me), with an elongated elliptical black spot of raised scales in the centre of the discal cell. An oblique green band, more or less interrupted, occupies the basal third of the wing below the cell and runs narrowly around the cell, widening centrally and subapically, but nowhere reaching the base or margin of the wing. It is deeply excavated opposite the middle of the internal margin, the sinus filled in with a large rust-red spot; another similarly colored, but smaller spot succeeds the subapical portion of the band. Both these spots precede the obscure, purplish, subterminal line. The green is narrowly bordered outwardly and below with silvery white and narrowly surrounded by black. Abdomen and secondaries colored like the thorax or paler. Below, concolorous with secondaries above. Expanse ♂, 20–26 mm.; ♀, 23—30 mm.

Var. **delphinii** Boisd (Plate iv, figs. 1-3).

quercicola H.-S.

tardigrada Clem.

The green is confined to a small triangular patch at the base below median vein, often slightly excavated externally, and a still smaller subapical patch.

Var. **querceti** H.-S. (Plate iv, figs. 4-6).

bifida Pack.

The green patches are larger than in the above, and the basal one is bifid, sending out a narrow line of green above the rust-red spot.

Var. **interjecta** W. Var. (Plate iv, figs. 7, 8).

I propose this name for the specimens connecting var. *querceti* with var. *monitor*, in which a line of two or more little green dots connects the outer part of the basal green patch with the subapical one. These dots become larger and run together in specimens that are near *monitor*.

* This is Clemens' description: "♂.—Body and fore wings rather dark reddish brown, with a small, nearly triangular pea-green patch, narrowly bordered with dark brown, at the base of the wing beneath the median nervure, slightly excavated behind, where it joins a bright brown patch. Toward the hind end of the disc [cell], in its middle, is a minute, oval, dark brown streak; two small, pea-green, subapical spots, the one nearest the costa minute." It evidently refers to the var. *delphinii*. Clemens also describes the genus and the larva of his species, but the characters are all borne out by specimens of *Euclea cippus*.

Var. **monitor** Pack.* (Plate iv, figs. 9–11).

In this the green forms a complete band, excavated above the middle of the internal margin. Harris gives a good figure of it in "Insects Injurious to Vegetation," page 420.

The above varieties are all connected by intergrading forms.

The larva is elongate, rounded, the dorsal region flat, nearly level, of uniform width, rounded at the extremities; sides nearly perpendicular. Head whitish, labrum and sutures of clypeus yellowish; ocelli black; jaws dark brown; retracted beneath joint 2. Along the subdorsal ridge of the body on each side is a row of elongated spinose tubercles, on joints 3 to 13 inclusive; those on joints 3, 4, 5, 11, 12 and 13, about three times as long as the others. The spines are short, black, and arise from conical bases. Another lateral row of spinous tubercles beginning on joint 3, those on joints 6 to 12 situated above the spiracles (none on joint 5) the one on joint 4 about as long as the subdorsal one, the others of uniform length, longer and rather slenderer than the short subdorsal ones. A row of dorsal and lateral elliptical depressions, each containing two irregular whitish dots, only appearing distinctly when the body is retracted. The body is covered with very minute transparent granulations. Spiracles very small, circular, projecting, yellowish.

The larva varies much in color, from sordid purplish to green; there is a subdorsal band covering the row of tubercles which varies from ferruginous through yellow to green (it may be concolorous with the body) sometimes narrowly and irregularly edged with black or crimson, but always thrice interrupted by a subquadrate spot of red or dark brown, viz., between joints 6 and 7, 9 and 10, 11 and 12. Length, 12 mm.; width, 6 mm.; height, 4 mm.

Hab.—Atlantic States to Mississippi Valley, South America (?).

Euclea elliotii Pearsall (Plate iv, figs. 12, 13).

1887.—Pearsall, Ent. Amer. ii, 209.

Closely allied to *E. pœnulata*, from which it differs only in the presence of the discal dot and the somewhat smaller size of the green patch which does not reach quite so near to the costa, nor exactly to

* This variety comes nearest to Cramer's figure of *cippus*. I have had some doubt about referring the species to *cippus* at all, as I have never seen a specimen that exactly corresponds to Cramer's figure in which the green band is broken into three triangular spots; but this may occur. The figure is too poor to base critical remarks upon, but it seems extremely probable that it is the present species that was intended. However, if this should not prove satisfactory, there are plenty of other names, as may be seen from the above synonymy. There is no doubt about the figure of *delphinii*.

the subterminal line. The narrow space between the obscure subterminal line and the green patch is filled in with a rust-red shade.

The larva, as described by Mr. Pearsall, does not seem to differ from Prof. French's description of *E. pœnulata* more than is the case in many examples of *cippus*, and I expect that a good series of moths will show that we have to do with but one species. I have been able to examine but one specimen of *pœnulata* and four of *elliotii*, among the latter the type of the species by the kindness of Mr. Pearsall.

Hab.—Middle States.

The specimens figured in the plate I owe to the kindness of Dr. Packard.

Euclea pœnulata Clemens (Plate iv, fig. 14).

1860.—Clemens, Proc. Acad. Nat. Sci. Phil. 159.

1881.—French, Papilio i, 144.

Thorax and primaries dark brown, the green patch on the wings similar to that of *cippus* in its exterior and interior outline, but extending outwardly to the subterminal line and much further basally over the cell, reaching the base of the wing, but not extending on to the costa. It is edged with silvery white outwardly and below, and narrowly with black, and the sinus above the middle of the interior margin contains a large rust-red spot as in *cippus*. The brown space along the costa widens toward the base. Secondaries paler brown; underside still paler, concolorous. Expanse 28 mm.

Hab.—Illinois.

Prof. French describes the larva, which is very similar to that of *cippus*, but lacks the subquadrate spots, which interrupt the subdorsal bands of that species.

Euclea incisa Harvey (Plate iv, fig. 16 ♂, 17 ♀).

1876.—Harv., Can. Ent. viii, 5, *Parasa*.

1877.—Grote, Can. Ent. ix, 85, *Euclea*.

Primaries wood-brown, nearly covered by a large green patch more extensive than in *pœnulata* Clem., slightly waved opposite the cell, and rectangularly excavated opposite the outer third of the internal margin, much more distinctly in the male than in the female. The patch is edged outwardly and below with a darker line, and is but very narrowly separated from the costa and internal margin, more broadly just at the base of the costa. Secondaries pale testaceous, unicolorous. Below concolorous with secondaries above. The thorax is dark brown, the abdomen pale. Expanse ♂ 26 mm.; ♀ 32 mm.

Hab.—Texas.

Mr. Grote carefully separates this species from *Euclea pœnulata* Clem.

I know of no description of the larva. The species seems, in some respects, intermediate between the genera *Euclea* and *Parasa*, and it will be very interesting to observe the affinities of the larva when found, as the larvæ of these genera differ decidedly.

Parasa viridus Reakirt* (Plate iv, fig. 18).

1864.—Reak., Proc. Ent. Soc. Phil. iii, 251, *Limacodes.*

vernata Packard.

1864.—Pack., Proc. Ent. Soc. Phil. iii, 339, *Callochlora.*

Primaries wood-brown, the pea-green patch smaller than in *incisa* Harv. It is separated by a brown line from the costa and reaches the internal margin, but is not excavated, being only slightly waved above the internal margin. It reaches the base of the wing only along the margin, being replaced by a triangular patch of the ground color which rests upon the costa. The green is bordered with a narrow brown line, and the veins in the terminal space are marked with brown. A blackish brown shade along the center of the outer margin. Secondaries yellowish testaceous, the fringe shaded with brown. Thorax pea-green; abdomen yellowish testaceous. Below, concolorous with the secondaries above, the fringe brown. Expanse about 25 mm.

Hab.—Middle States.

A number of references to descriptions of the larva may be found in Mr. Henry Edward's catalogue of transformations of N. A. Lepidoptera under "*Parasa chloris.*"

Parasa chloris Herrich-Schäffer (Plate iv, fig. 19).

1854.—Her.-Sch., Samml. Aussер. fig. 176.

fraterna Grote.

1881.—Grote, Papilio i, 5.

1887.—Hy. Edwards, Ent. Amer. iii, 169.

Very similar to *P. viridus* Reak., but the green band is still narrower. Primaries wood-brown, crossed by an oblique pea-green band that is separated by a brown line from the costa, and is continued along the internal margin to the base of the wing. The band is edged with brown, but there is no blackish shading in the terminal space, though the veins are marked with brown. Secondaries pale yellowish at base the outer half wood-brown. Below, yellowish testaceous; costa, outer third of primaries and fringes, brown. Thorax pea-green; abdomen largely tinged with brown. Expanse about 20 mm.

Hab.—Middle States.

The larva is somewhat ovate in outline as seen from above, the last segment being produced into a little pointed tail. The dorsal region is flat, highest at joint 5, and diminishes to the extremities. The subdorsal ridges bear each a row of large round warts covered with spines, those on joints 3, 4, 5, 11 and 12 the largest, the rest much smaller; a similar row above the spiracles, all small. The head is retracted within joint 2, and this in turn under joint 3. There is a double row of blackish impressed spots in the dorsal region and elliptical depressions on the sides, but the skin is nearly uniform, soft and smooth. Color greenish brown, lighter, more reddish posteriorly, shaded on the dorsum with dark orange; a number of indistinct, brighter waved lines. Below colorless, bordered by a salmon colored band.

* Mr. Henry Edwards has called my attention to a fact which I have recently verified, viz., that Herrich-Schäffer's figure of *chloris* represents the species known as *Parasa fraterna* Grote. Hence the synonymy will have to be altered as above.

Closely related to *Euclea* is the genus *Adoneta* Clem., but in our lists it has not been associated with its allies. It differs from *Euclea* in the shorter pectinations of the antennæ of the male and the more slender body. The shape of the wings and pattern of maculation are the same, but the venation differs in that *Adoneta* has but four subcostal venules, while *Euclea* has five in the fore wings, and the subcostal vein in the hind wings divides nearer the tip of the wing in *Adoneta*. These are all weak characters.

The larvæ are of the same structural type in both genera, but that of *Adoneta* is more highly colored.

From a consideration of characters, drawn principally from the larva, I would arrange the genera of the Cochlidiæ somewhat as follows, omitting the genera of which I do not know the larva:

Parasa	Phobetron	{ Lithacodes
{ Euclea	Isa	{ Tortricidia
{ Adoneta	Limacodes	
Empretia	Packardia	

L. flexuosa and *L. cæsonia* of Grote, do not belong to *Limacodes*, and will probably have to be referred to *Heterogenea* or an allied genus, as, indeed, Mr. Grote has himself suggested.*

Varina ornata Neum., in my opinion, does not belong to the Cochlidiæ.† I have examined a ♀ specimen which Mr. Graef has kindly loaned me, and a ♂ from Prof. Smith. If the moth is a bombycid at all, it will have to be referred to the Dasychiræ as its characters exclude it from the other subfamilies. I would add the following characters to Mr. Neumoegen's description of the genus:

Primaries 12-veined; internal vein not furcate at base; median 4-branched, vein 5 nearer to 4 than 4 to 3 at base; cell open; 6 arising from cross-vein near the subcostal; a small, narrow accessory cell; 7 from 8 immediately beyond accessory cell; 8 and 10 together from end of accessory cell; 9 from 8 rather more than half as long as 8. In the secondaries 3 and 4 arise together from the end of the median; cell open; 5 absent, represented by a fold; 7 from 6 beyond the end of cell; 8 touches the subcostal at about one-sixth the length of cell from base

Tongue present, but weak; ocelli small. The thorax is covered with scales and hair, and not hair alone, as Mr. Neumoegen states.

A knowledge of the larva of *V. ornata* is much to be desired.

* New Check List, page 63. I think that *cæsonia* may prove to be synonymous with *Heterogenea shurtleffii* Pack. *Flexuosa* is congeneric, and may be only a form of *cæsonia*.

† See Mrs. Slosson, Ent. Amer. vi, 136.

Artaxa ingenita Hy. Edwards does not belong in the Cochlidiæ, but is also referable to the Dasychiræ.*

Monoleuca subdentosa n. sp. (Plate iv, fig. 21)

Allied to *M. semifascia* (fig. 20). Thorax and primaries dark walnut-brown; abdomen, secondaries and under side paler. A narrow, upright, zigzag, white line extends from the middle of internal margin to median vein, but does not cross the vein nor extend on to the fringe as does the corresponding mark in *semifascia*. It is twice regularly angulated, more sharply externally. The space between this mark and the base of the wing is of a ferruginous brown, paler than the rest of the wing and narrowly separated from the white mark by the ground color. Expanse 22 mm.

Type, one ♀, in the collection of Mr. Graef.

The species of *Monoleuca* may be separated as follows:

Transverse band upright.
  Band white.
    Band narrow, preceded by a ferruginous shade.....**subdentosa** Dyar.
    Wider; wing concolorous.....**semifascia** Walk.
  Band yellow.....**sulfurea** Grote.
Transverse band oblique.....**obliqua** Hy. Edw.

Genus **PACKARDIA** G. and R.

This genus was characterized by Dr. Packard, in 1864,† as *Cyrtosia*, but this name, being preoccupied, was subsequently changed by Grote and Robinson.

The species are subject to considerable variation, and are usually rare. I have examined the male genitalia of three species and I cannot find that they offer any characters to afford specific separation. The supra-anal plate in all narrows rapidly, and is extended backward in a long, even, narrow prolongation that slopes downward without curving, being pilose beneath. It resembles the same part in *Datana*, but is much less strongly bent down. The side pieces are simple, concave inwardly, slightly tapering, the ends rounded. The larvæ are small green *Limacodes*, much resembling *Parasa fraterna* in general shape, but lacking the spinose subdorsal tubercles. The end of the body is produced into a little "tail" as in *Parasa*, which is often marked with red above, and this constitutes the only colored marking. They feed on the leaves of any deciduous tree, usually frequenting the central or more shaded parts of the woods. Only one brood occurs each year in New York, the larvæ maturing in September.

Dr. Packard has kindly allowed me to see his material in this genus, and I believe the following arrangement of species corresponds with his opinion.

* See Butler, Ann. Mag. N. H. 1884, p. 200. † Proc. Ent. Soc. Phil. iii, 342.

Packardia elegans Packard (Plate iv, fig. 22).

1864.—Pack., Proc. Ent. Soc. Phil. iii, 342, *Cyrtosia*.

nigripunctata Goodell.

1881.—Good., Can. Ent. xiii, 30. *Packardia*.

Primaries blackish or bronzy brown, with two parallel, oblique, white bands, the inner from the basal third of the inner margin to near the center of the costa, shaded outwardly with black; the outer from basal two-thirds of inner margin to opposite the end of median vein, where it is joined by a third curved white band that runs from the costa just beyond the end of the first band to the internal angle, where it becomes faint, obsoletely enclosing two round, superposed black spots. Both bands are faintly shaded inwardly with black. Secondaries whitish, strongly tinged with bronzy brown. Expanse of wings 19 mm.

The inner white band is fainter than the two outer ones (while its bordering black shade is more distinct), and Mr. Goodell's *nigripunctata* is founded on examples in which it is obsolete.

Curiously enough this species has been omitted from both the Brooklyn Check List and Mr. Grote's New Check List, as well as from Mr. Hy. Edwards' additions to the same (Ent. Amer. vol. iii).

Packardia fusca Packard.

1864.—Pack., Proc. Ent. Soc. Phil. iii, 343, *Cyrtosia*.

Primaries whitish buff, consisting of a dull white ground "dusted with ocherous brown scales, thickest at the base of the wing." The markings are exactly as in *elegans*, but much more obscure, in some examples hardly discernible. The white bands are scarcely paler than the ground color being defined by the ocherous scales; the outer dark shade of the inner band and the round superposed spots at the internal angle are ocherous brown, in one example quite well defined. Secondaries very pale, darker along the outer margin. Expanse of wings 16—19 mm.

Packardia geminata Packard (Plate iv, fig. 23).

1864.—Pack., Proc. Ent. Soc. Phil. iii, 343, *Cyrtosia*.

Primaries chalky white, irrorate with chocolate-brown scales and thickly dusted with ocherous brown scales at the base of the wing and internal angle. Two parallel, oblique, chocolate-brown bands, the inner somewhat undulate, reaching from the basal third of the inner margin to near the center of costa, the outer from the basal two-thirds of inner margin till it joins a third curved band, which extends from the costa just beyond the end of the first band to just above the internal angle, where are three superposed, rounded, triangular white spots, the lower one very small, all narrowly surrounded by chocolate-brown. In the single example before me the space between the first two bands is strongly filled in with chocolate-brown, especially on the costal half of the wing, and this shade spreads outward diffusely beyond the third band in the center of the wing. Secondaries even paler than the primaries, dusted with brown scales. All the fringes are narrowly lined at base and near tip with chocolate-brown. Expanse of wings 26 mm.

Larva.—Pale, or whitish green with four longitudinal slight elevations or ridges, viz.: one subdorsal and one supra-stigmatal on each side; the body terminating in a short tail. The subdorsal ridge is darker green than the body, and is bordered below with whitish.

Cocoon.—As in the other species of Cochlidiæ, subspherical, hard and brown, the end opening as a little circular lid.

Packardia albipunctata Packard (Plate iv, figs. 24, 25).

1864.—Pack., Proc. Ent. Soc. Phil. iii, 344, *Cyrtosia.*

ocellata Grote.

1865.—Grote, Proc. Ent. Soc. Phil. iv, 322, *Cyrtosia.*

The ground color of the primaries is the same as in *geminata*, the lines and superposed white spots are the same (though in one example there is a trace of a fourth white spot), but the ocherous brown or sable brown and chocolate-brown shadings are more extensive, while the secondaries are pulverulent dark blackish brown. A male example before me (fig. 25) has the basal space filled in with sable brown, the rest of the wing chocolate-brown, obscuring the lines, except a subquadrate apical space, where the white ground color prevails, irrorate with brown scales. Fringe paler at base. The female (fig. 24) has a basal ocherous brown shading, but the chocolate-brown shade is confined to the space enclosed by the second and third bands at the internal angle, leaving the ground color to appear on the rest of the wing. Fringe ocherous. Expanse 23—27 mm.

Mr. Grote's *ocellata* was apparently founded on examples similar to the female I have described above.

Larva.—Extremely similar to that of *geminata*. I have not noted any differences.

Cocoon.—Not different from that of *geminata*.

Packardia goodellii Grote.

1880.—Grote, Can. Ent. xii, 242, *Packardia.*

It seems probable that this species is only a very dark variety of *P. albipunctata*, but I have not seen enough specimens to be able to decide. Mr. Grote's description is substantially as follows, and well characterizes this form:

"Entirely blackish, with a faint brown shading about internal angle, where are two white, unequal spots. Fringe blackish, concolorous, interlined with pale and with a distinct white fleck below apices. The usual lines on the primaries are lost in the ground color; the outer may be made out, followed by a whitish shade on costa. The costal edge at apices is whitish. Secondaries concolorous, blackish, paler beneath; the fringe is paler outwardly. Expanse 20—22 mm."

The species of *Packardia* may be separated by the following table:

Spots above internal angle of primaries black or blackish.
  Fore wings bronzy brown ..... **elegans** Pack.
  Fore wings whitish buff ..... **fusca** Pack.
Spots above internal angle of primaries white.
  Secondaries white ..... **geminata** Pack.
  Secondaries black.
    Fore wings partly obscured by dark chocolate-brown shadings. **albipunctata** Pack.
    Fore wings entirely dark brown ..... **goodellii** Grote.

REVISION OF THE DONACIÆ OF BOREAL AMERICA.

BY CHARLES W. LENG, B. S.

Donacia was established by Fabricius, in 1775, for a European species allied to our *subtilis*, and the name, derived from the Greek *donax*—a reed,—is indicative of the habits of that and the other species comprised; all are subaquatic, the larvæ feeding in, the imagines being found about reeds, pond lilies, Sagittaria and other water plants. The earliest descriptions of our species are by foreign authors, Ahrens and Kunze, in 1810 and 1818 respectively. Thomas Say described five in 1823 and 1827, Newman added others, and Kirby still more. In 1845 there was published a "Monographie" by Lacordaire, which swelled the number considerably. In 1851, Dr. LeConte reviewed the described species, noting many synonyms, and in 1873 Crotch made a Synopsis, on which the names now in use are based. In all, about 70 names have been proposed, and over 100 pages printed in descriptions.

Some confusion still existing, I have attempted in the following pages to give the characters by which the really distinct species may be recognized. Unassisted, this would have been both presumptuous and impossible; but in advice and material I have received so much help, that I hope the result may be found satisfactory. To Dr. Geo. H. Horn I owe the free use of a collection representing all the described species, each one specially compared with the types of Dr. LeConte's species in the Cambridge Museum; as well as the results of his observations on the genus for many years back. Through the favor of Prof. C. V. Riley, I have been entrusted with the collection of the National Museum. To Mr. Frederick Blanchard I owe many valuable suggestions and sets of the species living on the Concord River. To Messrs. Roberts, Liebeck, Westcott, Wickham, Hulbert and Sherman, my thanks are due for specimens. Finally, my friends on Staten Island, William T. Davis and J. C. Thompson, have freely given me the use of their collections and time.

Before using the synopsis, the reader should observe the following explanation of the terms employed.

"Elytra truncate at tip, or subtruncate." Under this head are included all the forms that are in the least truncate, or even doubt-

fully so, and the only form excluded is that in which the tip is evidently rounded. In such the sutural margin is sinuate.

"Mesosternum narrower than the coxa." By this is meant that the portion of the under surface seen between the middle coxæ is narrower than those coxæ separately. It is used as a convenient measure of the width of the insect, being narrowest in the conspicuously slender species, and may be inferred where it is difficult to see, as when the insect is pasted on a point.

"Sutural margin sinuate posteriorly." In many Donaciæ the elytra are declivous at the apex; the elytra are closely joined at the suture in repose, but the margins on the declivous portion appear double, and although they truly meet, there is a second apparent margin within the true one. This second margin, starting not more than one-fourth the length from the tip—often less—is sinuate, or curved more or less, away from the suture. Thus a space somewhat elliptical in shape is formed, sometimes depressed, sometimes in the same plane with the rest of the elytron, and always destitute of punctuation. This sinuation might also be described as a sinuate displacement of the sutural stria.

"Posterior femora elliptical." In all Donaciæ but *rufa*, the posterior femora are decidedly pedunculate. In that species the neck is not evident, and I have followed Dr. LeConte's use of the term elliptical to describe them, though they are actually much broader at the apex.

Certain characters are subject to great individual variation. These are the color, the relative length of the antennal joints, the number and size of the femoral teeth or spines, and the punctuation and sculpture of the upper surface. While differences in these respects are, to an extent, indicative of specific rank, it is important that they be not carried too far, and I have endeavored to mark their limits in the descriptions which follow the synopsis.

The dilation or extension into spinous processes of the tibiæ is very evident in some species. In *piscatrix* and *palmata* this is especially true of the middle tibiæ, and a spinule may also be seen beneath the dilation. In certain of the convex species the dilation is more apparent on the front tibiæ. The character, however, varies greatly in individuals of the same species, and I have not made use of it in the synopsis.

The sexes in most Donaciæ are widely differentiated. As a rule the females are broader, the posterior femora are either without or

with fewer and weaker spines than the male, and the last dorsal segment is rounded at apex and more or less elongate. The males besides being narrower and more strongly armed on the femora, have the pygidium shorter and either truncate, arcuately emarginate, or acutely triangularly emarginate, but never rounded. The males of *palmata* have the anterior tarsi dilated, and the same sex of *piscatrix* has the first ventral segment excavated.

All the species of Donacia are subaquatic in habit, frequenting either the pond lilies, on the broad leaves of which they may be seen from April to September, or the rushes and sedges that grow in damp places.

In the following synoptic table several new names will be noted; these are:

cincticornis Newn., which was formerly called *lucida* Lac., or in the check lists *rugifrons* Newn.

pusilla Say, which antedates and replaces *cuprea* Ky.

rufa Say, which antedates and replaces *Kirbyi* Lac.

The scheme proposed is as follows:

Head and thorax evidently pubescent above .....Group A.
Head occasionally, thorax never pubescent.
Elytra truncate at tip, or subtruncate.
Form decidedly flattened; mesosternum about as broad as each coxa. Group B.
Form more convex; mesosternum narrower than the coxa.....Group C.
Elytra rounded at tip, the sutural margin sinuate posteriorly; form convex; mesosternum narrow .....Group D.

Group A.

Three species fall into this group which are not otherwise at all similar. It will be noted that *pubescens* is the only species with pubescent elytra, and *pubicollis* the only one with the femora destitute of teeth or spines in both sexes. A badly rubbed specimen of *hirticollis* might be placed in the next group, from all the species of which it may be distinguished by the very small tooth of the femora, which is often reduced to a mere lump. The species are separated thus:

Elytra without pubescence; posterior femora with a small tooth...hirticollis.
Elytra without pubescence; posterior femora simple.....pubicollis.
Elytra evidently pubescent; posterior femora toothed .....pubescens.

Group B.

The species comprised in this group are similar in appearance, all being evidently flattened above; the first ventral segment is not only flattened, but longer than all the others combined; the color is frequently testaceous; the middle tibiæ are expanded at tip and are armed beneath with a spinule; the mesosternum is conspicuously broad in all except *piscatrix* male. These are the species which frequent the pond lilies, and Mr. Blanchard has suggested that their great breadth of beam indicates an adaptation to their particularly aquatic existence, in which connection it is worthy of note that the pubescence of the under surface, characteristic of the tribe, is in them especially developed. The species are:

Thorax narrowed in front; posterior femora pluridentate male, simple female ..... **floridæ.**

Thorax quadrate, or wider in front; posterior femora dentate in both sexes, the male often bi- or tridentate.

Antennæ with second and third joints nearly equal..... .....**cincticornis.**

Antennæ with third joint much longer than second.

Elytra truncate.

Anterior tarsi of male dilated..... ..... **palmata.**

Anterior tarsi simple..... **hypoleuca.**

Elytra subtruncate, form more convex; first ventral segment of ♂ excavated..... ..... **piscatrix.**

The specimens which I include under the name *cincticornis* may be divided into three species or varieties or races as follows:

Prothorax not coarsely punctate.

Posterior femora male very large and strongly dentate, posterior tibiæ curved and serrate..... ..... ***lucida.***

Posterior femora less developed..... ..... **unnamed.**

Prothorax punctate at base and apex only; posterior femora less developed, tibiæ straight, or nearly so..... ..... ***proxima.***

Prothorax coarsely punctate over its entire surface; femora and tibiæ as in preceding ..... ***magnifica.***

From the number of specimens before me, showing all gradations in the thoracic sculpture and femoral armature, I do not think these forms can be recognized as species, and I suggest that they be placed in our lists as varieties.

Group C.

This group includes *subtilis*, of which the female might, with equal propriety, be placed in the preceding group, though the male is decidedly more convex; and several species which, by their convex form, are associated with the last group, but differ in the truncate

elytral tip. Two species, *Harrisii* and *distincta*, present also the peculiar sinuation of the sutural margin of the elytra which characterizes that group. This consists in the displacement of the margin for a space equal to one-fourth the length of the elytron, whereby, when the elytra are closed in repose, an elliptical space is formed bounded by the displaced margins. In *Harrisii* the margin appears double, and the inner sinuate portion is in a higher plane than the outer straight portion. In most of the species the material which fills the sinuation is in the same plane.

Eyes of normal size; sutural margin of elytra straight, except in *distincta*.
  Thorax punctate, not or scarcely tuberculate.
    Thoracic punctures coarse, uniform.....**subtilis.**
    Thoracic punctures uneven, finer punctures mixed through the coarser.
porosicollis.
  Thorax uneven on the disc, tuberculate on the sides.
    Sutural margin of elytra straight.
      Elytra with two transverse indentations.....**æqualis.**
      Elytra not indented; posterior femora male dentate, female simple.
tuberculata.
    Sutural margin of elytra sinuate.....**distincta.**
Eyes small; thorax tuberculate; sutural margin of elytra sinuate....**Harrisii.**

Of these species, *porosicollis* seems rare; the specimens I have are far more slender than any other, and there is an appearance of an abrupt demarkation on the sides of the elytra. Inasmuch as *subtilis*, its nearest ally, is constant in the style of its punctuation, I have preferred to use that character for the separation of the two species. The specimens under *subtilis* may be separated thus:

Thorax straight on the sides; second and third antennal joints subequal...*subtilis*.
Thorax constricted at middle; third joint of antennæ longer than second...*rugosa*.

but on account of the variations observed in these characters in other species, I doubt *rugosa* being a distinct species; *torosa* Lec. is included with *distincta*.

Group D.

The species here included are readily distinguished by the convex form, rounded elytra and sinuate sutural margin. They may be separated as follows:

Thorax depressed without basal and medial groove.
  Posterior femora dentate in both sexes.....**pusilla.**
  Posterior femora dentate in male only.....**femoralis.**
Thorax convex, punctured, and with an evident basal and more or less evident medial groove.

Posterior femora pedunculate; thorax closely punctulate.
Legs dark; posterior femora dentate in both sexes.....**emarginata.**
Legs dark; posterior femora dentate in male only.....**metallica.**
Legs rufo-testaceous; posterior femora dentate in both sexes.....**flavipes.**
Posterior femora elliptical; dentate in both sexes; thorax sparsely punctured; legs rufo-testaceous .....**rufa.**

The species contained in this group may be arranged in pairs as placed above; the differences, however, between *pusilla* and *femoralis*, *emarginata* and *metallica*, and *flavipes* and *rufa*, are feeble. The first pair are readily isolated by the depressed thorax, the second by the dark legs, the third by the yellow legs and more convex thorax. It must be observed that the femoral tooth is less developed in the females throughout the genus, and is particularly weak in this group; femora are subject to some variation in form and the punctuation is inconstant in many of the preceding species, so that, while the considerable number of specimens before me are separable by the characters given, the reader must be prepared to find some which, in these respects, will vary from the typical form.

Descriptions and Notes.

In the following pages I propose to copy either the original description, or that of Dr. LeConte's paper, supplementing each with descriptions of those parts especially useful in recognizing the species and stating the sexual differences and the variations I have observed. The bibliography and synonymy is placed at the end.

D. hirticollis Kirby. Original description.

"Downy satiny underneath and silvery, elytra naked, black with the punctures of the rows green gilt; posterior thighs unidentate. Length 3.5 lines. A single specimen taken in lat. 65°.

"Body underneath covered with a thick coat of decumbent pile resembling satin and shining like silver. Head hoary from inconspicuous hairs, most minutely and confluently punctured with a slight interocular channel with an obtuse ridge on each side; antennæ with the second and third joints equal in length, auburn glittering with silver pile; prothorax longer than wide, hoary from inconspicuous down, most minutely and confluently punctured, channeled, sides subimpressed, anterior tubercles flat; scutellum large, levigated; elytra black, punctured in rows, whose interstices are wrinkled; posterior thighs with a single short obtusangular tooth. This pretty species comes near *bidens* Oliv., which I always find on *Potamogeton natans*, but it is sufficiently distinguished by its black thorax hoary from down and legs without any red."

Mesosternum narrower than the coxa; ***first ventral segment*** about equal to the metasternum; ***form*** moderately flattened above and beneath; ***third joint of antennæ*** equal to or slightly longer than the second.

The *males* are narrower, have the tooth of posterior femora larger and more acute, and the pygidium truncate or barely arcuately emarginate The *females* are broader, the femoral tooth is feeble or reduced to an almost imperceptible lump, and the pygidium is rounded, not at all emarginate.

The twenty-five specimens before me vary in size; in color, two having the elytra yellow; in the sharpness of the truncation of the elytra, the outer angle being indistinct in some.

Length 9—11 mm.; .36—.44 inch. *Habitat.*—Cal., Wash., Can., Lake Superior, Hud. Bay Terr., N. Y.

Food-plant unknown.

D. pubicollis Suffrian. Crotch's description.

"Narrow, elongate æneous; legs pale red, under surface silvery; head, thorax and scutellum cinereous, pubescent; eyes prominent; thorax longer than broad, callus not well marked, surface punctulate; elytra closely striate punctate, apex rounded, interstices rugulose; tibiæ carinate externally, apex not produced. L. .42. Illinois. Very distinct by the rounded elytra, simple femora, and pubescent thorax."

Mesosternum narrower than the coxa; *first ventral segment* longer than the metasternum; *third joint of antennæ* much longer than the second. The *form* is convex above and but little flattened beneath.

The sexes do not differ.

About twenty specimens in different collections present no variations.

Length 10—11 mm.; .40—.44 inch. *Habitat.*—Illinois.

Food-plant, *Nymphæa.* This species seems to be comparatively rare, and is curiously local, every specimen being labeled Illinois, or N. Illinois.

D. pubescens LeConte. Original description translated.

"Elongate, ferruginous, densely clothed above with sericeous golden hair; thorax quadrate, slightly constricted on each side at middle, broadly channeled above, vaguely impressed before and behind, tubercles broad, but little prominent; elytra with the disc depressed, the sides suddenly declivous, towards the suture tri-impressed, apex subtruncate, striæ strongly punctate, interstices almost flat; posterior femora edentate. Length 9 mm."

Mesosternum narrower than the coxa; *first ventral segment* longer than the metasternum; *third joint of antennæ* longer than second.

The *males* are narrower than the females, and have the pygidium short and broadly rounded, nearly truncate; the *female* pygidium is elongate, rounded at tip.

Three specimens only, present no variations.

Length 7—9 mm.; .28—.36 inch. *Habitat.*—Can., Ill., Mich.

D. floridæ n. sp.

Form flattened; thorax narrowed in front; elytra truncate at apex, outer angle spiniform; posterior femora pluridentate male, not dentate female; body pubescent beneath only, color in the three specimens before me testaceous, with metallic gloss; the third joint of antennæ twice as long as second; mesosternum as wide as coxa; first ventral segment longer than metasternum.

Male.—Pygidium short, broadly rounded; posterior femora strongly incrassated with three distinct teeth, of which the middle one is much longer and sharper.

Female.—Pygidium elongate, rounded at apex; posterior femora feebly incrassate, not dentate.

Length 7 mm.; .28 inch. *Habitat.*—Florida.

I cannot find any description agreeing with the characters of this insect. It looks like a small *lucida*, but differs not only in the simple femora of the female, but in the form of the thorax. I have seen only three specimens, in the National Museum.

D. cincticornis Newman. Original description translated.

"Antennæ elongate, the basal joint pale, the apical black; vertex shining; prothorax quadrate, most minutely punctured, with an impressed dorsal line; head and prothorax black æneous, elytra testaceous, shining; elytral apex truncate; metafemora elongate, incrassate, bidentate; legs testaceous, femora with two black vittæ. [Corp. long. .325 unc., lat. .1 unc.]

This species has been long known as *lucida* Lec. The synonymy was pointed out by Dr. Horn some time ago, [Ent. Am. I, p. 9] but has not been corrected in the Check List. Lacordaire's description of *lucida* is as follows:

"Moderately elongate, above metallic green, very shining, elytra rufescent; beneath densely cinereo-sericeous; antennæ and legs rufous, maculate with black; prothorax transverse, slightly narrowed behind, the angles obtuse but distinct, the margin in front and at the middle of the base, reflexed; towards the front on each side obsoletely tuberculate; above vaguely rugose, with a dorsal sulcus abbreviated behind and an impressed puncture; elytra flattened on the disc, declivous at apex, which is squarely truncate; bi-impressed, punctato-striate, interstices flat, vaguely transversely rugose. Length 3¾—4½ lines; width 1¼—1⅔ lines."

Mesosternum as broad as the coxa; *first ventral segment* longer than the metasternum; *third joint of antennæ* about equal to the second; *posterior femora* incrassate and dentate.

Male.—Pygidium truncate; posterior femora strongly incrassate and sharply dentate, or even tridentate.

Female.—Pygidium elongate and rounded at apex; posterior femora feebly incrassate and unidentate.

The posterior tibiæ are serrate in well developed specimens ♂.

Length 7—11 mm.; .28—.44 inch. *Habitat.*—Can., Mich., N. Ill., N. H., N. Y., Mass., Texas, Vt.

This is an abundant and very variable species; it is the species called *rugifrons* Newm. in many collections, which name was applied

to an entirely different insect belonging to the last group. The variations observed are in size, as indicated above; in color, which may be a uniform greenish black, or a much lighter color almost testaceous, or a combination of both; in the femoral teeth, which depend in number and size upon the development of the insect, and may be traced through gradually weakening forms, from three prominent spines in the male to a single obtuse tooth in the female; and in the relative length of the antennal joints, the third being usually as short as the second, but sometimes evidently longer. It is never twice as long, however, as in the following species. Although selected specimens can be made to look very different, I can find no character in these variations to base even a variety.

With the punctuation of the thorax, it is somewhat different. Intermediate specimens do occur, and indicate the close relation between *cincticornis* and its varieties *proxima* and *magnifica*, but the greater number are readily separated, as indicated in the synopsis.

Food-plant is undoubtedly the pond lily, *Nuphar advena*. I have always found the insect on this plant, frequently within its yellow flowers, and Mr. Roberts has also in Vermont, and Mr. Blanchard in Massachusetts. Furthermore, it does not occur in localities where there are no lily ponds. The white water lily, *Nymphæa odorata*, occurs in many ponds with the *Nuphar*, and the insects show no partiality for it in the imago stage. The original descriptions of the varieties are:

Var. **proxima** Kirby.—"Thighs bidentate, with one tooth minute; above dark violet glossy, head rather bronzed; punctures of the elytra green gilt; body underneath covered with a satin silver pile. Length 5 lines. Taken in Canada by Dr. Bigsby. Body a little flattened, covered underneath with a dense coat of glittering silver pile resembling satin. Head a little bronzed, channeled between the eyes, minutely punctured, palpi testaceous; antennæ entirely black; prothorax in the disc dark violet and channeled, sides bronzed and impressed, anterior tubercles not prominent; scutellum bronzed; elytra nearly black, with a slight tint of violet, punctures green gilt, interstices of the rows not wrinkled, an anterior impression near the suture, rounded at the apex; posterior legs long, with the thighs somewhat curved, attenuated at the base, curved at the apex, with two teeth placed consecutively, the first long, slender and acute; the last wide, short and denticulated posteriorly. This species is nearly related to *crassipes* Fab., but the antennæ and legs are entirely black, and the teeth on the posterior thighs are not equal."

Length 8—11 mm.; .32—.44 inch. *Habitat.*—Cal., Idaho, Hud. Bay Terr., Can., N. H., Mass., N. Y., Pa., Wis.

Abundant, over forty specimens before me, none of which are testaceous in color.

Var. **magnifica** Lec.—"Elytra depressed, triangular, truncate; orbits of the eyes prominent; form broad, depressed; second and third joints of antennæ subequal; elytra deeply striate; tooth of the posterior femora emarginate or crenate; splendid violaceous, margined with gold; thorax quadrate, channeled, punctate; posterior legs large, tibiæ incurved. Length .34 inch. Lake Superior. Male, posterior femora bidentate, tibiæ serrate beneath. Female, posterior femora unidentate, tibiæ not serrate."

Length 8—9 mm.; .32—.36 inch. *Habitat.*—Hud. Bay, Can., Mich., D. C.?

Rare, only seven specimen examined.

D. hypoleuca Lacordaire. Original description translated.

"Elongate, rufescent-metallic, the surface shining and golden near the margins; beneath silvery sericeous; antennæ and legs concolorous, the posterior femora infuscate above; prothorax subquadrate, base sinuate, slightly constricted at middle, scarcely tuberculate on the sides in front, a narrow dorsal channel terminating in a transverse basal sulcus; elytra moderately attenuate at apex, which is squarely truncate, surface flat, feebly punctato-striate, the three external interstices very slightly transversely rugose, the others almost smooth. Length 4½ lines; width 1⅞ lines."

Mesosternum as broad as the coxæ; *first ventral segment* about as long as the metasternum; *third joint of antennæ* twice as long as the second; *form* broad and flattened; *thorax* not evidently punctate.

Male, pygidium truncate; *female*, moderately elongate, rounded at apex. Both sexes have the *posterior femora* unidentate, the female more feebly.

Length 10 mm.; .40 inch. *Habitat.*—Tex., La., Fla.

Eight specimens are before me, of which two are greenish black above; *texana* Crotch is the female.

Var. **rufescens** Lacordaire, is smaller, and has the antennal joints very moderately thickened externally. It occurs near Lowell, Mass., on the lily "pads," and I am indebted to Mr. Blanchard for my specimens as well as for pointing out its differentiation. It is also found in New York by Mr. Sherman, and in New Jersey by Mr. Liebeck, and is possibly mixed in collections with *cincticornis*, from which it may be separated by the length of the third antennal joint.

Length ♂ 8 mm.; .32 inch. *Habitat.*—Mass., N. Y., N. J.

D. palmata Olivier. Original description translated.

"Green metallic above, cinereous beneath; anterior tarsi dilated; of the same size as *D. simplex;* antennæ almost as long as the body, basal joints rufous, apical black; elytra punctato-striate; legs red, posterior femora metallic above, dentate beneath; anterior tarsi dilated, the first joint large, cordiform." [The dilated tarsi are present in the male only.]

Mesosternum as broad as the coxæ; *first ventral* as long as the metasternum; *elytra* truncate at tip; *form* flattened, more slender than the preceding species; *third joint of antennæ* more than twice as long as second; *thorax* scarcely punctulate.

Male, pygidium truncate; *female*, very elongate, rounded at tip; *posterior femora* dentate in both sexes, often bidentate in male.

Length 9—11 mm.; .36—.44 inch. *Habitat.*—Pa., N. J., N. Y., Mass., Can., Mich., Wis.

Abundant on the pond lilies. The color is often testaceous.

D. piscatrix Lacordaire Original description translated.

"Pale rufous, opaque; chest and head blackish; beneath cinereo-sericeous. Prothorax subtransverse, somewhat narrowed at base, anterior angles obsolete, the posterior distinct; bituberculate on each side, smooth above, impressed at base; the dorsal channel narrow, subobsolete. Elytra subparallel, apex declivous, broadly squarely truncate; disc flat, vaguely bi-impressed, punctato-striate; the interstices slightly convex, subporcated, on all sides very slightly coriaceous. Length 4½ lines; width 1¾ lines."

Mesosternum as broad as the coxa female, narrower male; *first ventral segment* about as long as the metasternum; *elytral tip* subtruncate, not so squarely terminated as in the preceding; *form* more convex, making an approach to the convex forms of following groups; *antennæ* comparatively shorter and slightly stouter; *femora* dentate, middle tibiæ unsymmetrically dilated at tip.

Male, pygidium subtruncate; posterior femora strongly dentate or bidentate; first ventral segment excavated at middle, *i.e.*, there is a depressed pit, such as the point of a dull pencil might have formed.

Female, pygidium elongate, rounded at tip; posterior femora unidentate, first ventral not excavated.

Varies in color from the typical "pale rufous" to a dark bronze just as the preceding species do; *alutacea* Lec. is the name applied to the darker forms in many collections, but it is impossible to draw any line between them. The intermediate forms are among the most beautiful specimens in the genus, the suture being broadly bronzed and the other part of the elytra golden testaceous.

This species occurs with the preceding on the leaves and in the flowers of *Nuphar*, and I have taken it on the roots of that plant, where it pupates, enclosed in an oval cocoon of leathery consistency. It is mixed in most collections with *palmata*, and the females are not readily separated.

Length 6.5—10 mm.; .26—.40 inch. *Habitat.*—Cal., Wis., Ill., N. Y., Ga., Fla., Texas. Abundant.

D. subtilis Kunze. Dr. LeConte's description translated.

"Depressed, elongate brassy; thorax densely rugosely punctate, quadrate, a little longer than wide, scarcely narrowed behind, angles prominent; more or less channeled, sides almost straight, scarcely impressed. Elytra tri-impressed, interstices flat; transversely densely rugose. Antennæ with third joint about one and a half times as long as second. Posterior femora less elongate, strongly clavate, armed beneath with an acute tooth. Length .27—.28. N. Y. and Pa. Varies cupreous metallic; varies also by the elytra being not impressed. Smaller specimens have the thorax deeply impressed."

Mesosternum narrower than the coxa, but wider in the female; *first ventral segment* longer than the metasternum; *tip of elytra* truncate, *form* broader in

...e female than in the male, and more elongate and less flattened than in the preceding group.

Male, pygidium truncate; *female*, pygidium obtusely rounded, form broader. The sexes are feebly differentiated in this.

Length 7—10 mm.; .28—.40 inch. *Habitat*.—Dakota, Wis., Can., N. Ill., Iowa, Col., Ohio, Pa., N. Y., Mass., N. H.

This species is very abundant on Staten Island at a pond bordered by marshy ground, where grow a number of sedges and grasses, on which the insects principally occur. They wander to the lily pads, but do not occur in ponds where the lilies alone are abundant. I therefore conclude that they live on these sedges. Mr. Clarence M. Weed has noted their abundance in a similar situation in Ohio (Bull. Ohio Ex. Station, 1889).

Var. **rugosa** Lec.—Differs only as stated in the synopsis. The specimens I have seen are from Lowell, Mass., collected by Mr. ...ichard, who has pointed out to me, very kindly, the character by which they may be separated.

D. porosicollis Lacordaire. Original description translated.

"Elongate, silvery sericeous beneath, above æneous; antennæ rufescent, legs variegated rufous and æneous. Prothorax quadrate, somewhat narrowed behind, the angles scarcely distinct; the disc rather flat, the sides deflexed, the entire surface finely strigose and cribrately impressed with minute punctures, the dorsal channel very narrow, entire. Elytra longer, apex scarcely declivous, moderately attenuate, and squarely truncate, finely punctato-striate, interstices very slightly though closely transversely strigose. Posterior femora armed beneath with a subobsolete tooth near the apex. Length 4¾ lines; width 1¼ lines."

Mesosternum narrower than the coxa; *first ventral segment* longer than the metasternum; *form* more slender than any other; *third joint of antennæ* one and a half times the second joint.

Sexual characters as in the preceding, which it closely resembles, except in the minute punctuation of the thorax.

Length 10 mm.; .40 inch. *Habitat*.—Mich., Pa.

Rare, only three specimens examined.

D. æqualis Say. Original description.

"Brassy, with two dilated indented subsutural spots on the elytra, and an indented humeral line: two elevated lines between the eyes. Inhabits Missouri.

"Body æneous, polished, punctured, glabrous; head with short cinereous pubescence, an obsolete indented line, two elevated tubercles between the eyes, extending in a depressed ridge to the base of the antennæ, where it is slightly more elevated; eyes black; antennæ clothed with cinereous pubescence, second and third joints equal; palpi and mandibles black; thorax densely punctured, punctures sometimes confluent, a longitudinal indented line, a lateral dilated, hardly elevated tubercle before the middle; scutel minutely punctured and rugulose; elytra with regular series of punctures, surface slightly rugulose; two subsutural dilated, obsolete, indented spots near the middle and a subhumeral impressed dilated line at base; beneath argenteous pruinose; feet cupreous, pubescent, a robust spine beneath the posterior thighs near the tip. Length rather less than 7-20 inch. Var. *a*. Body above cupreous, polished."

Mesosternum narrower than the coxa; *first ventral* longer than the metasternum; *elytral tip* truncate, the sutural margin near apex not sinuate, but polished impunctate; form short, moderately convex.

Male, pygidium truncate; *female*, slightly elongate, rounded at tip. The posterior femora are dentate in both sexes.

Length 5½—7 mm.; .22—.28 inch. *Habitat.*—Ga., D. C., Pa., N. Y., Ill., Iowa, Canada.

Dr. John Hamilton has advised me of the following facts regarding the habits of this species: "I have taken *æqualis* in April in a swampy meadow just thawing out. The insects were in the bunches of sedge and coarse grass, and must have been imbeded in ice most of the Winter, or under water much of the time. I take the same species in this swamp in July on the sedge, and with it I once took a few specimens of *subtilis*. This meadow is bottom ground between two hills."

D. tuberculata Lacordaire. Original description translated.

"Oblong, above æneo-cupreous shining, beneath cinereo-sericeous; abdomen, antennæ and legs rufescent, the femora broadly metallic green towards apex; prothorax subquadrate, narrowed at the base, anterior angles prominent, the sides strongly tuberculate anteriorly, the disc very convex, slightly closely rugose, with a deep dorsal channel, entire; elytra short, oblong, the apices declivous, separately rounded, above slightly depressed, evidently impressed, finely punctato striate, punctures aviculate, interstices flat, finely transversely rugose. Long. 2¾ lines. Lat. 1½ lines."

Mesosternum nearly as broad as the coxa; *first ventral* about as long as the metasternum: *elytra* slightly dehiscent at tip, which is distinctly truncate, the impressed or indented spaces on the disc not deep as in the preceding, but barely evident; *antennæ* with third joint twice as long as second; femora differing in the sexes.

Male, pygidium truncate, emarginate at middle; posterior femora with an acute tooth. *Female*, pygidium elongate, rounded at tip, posterior femora usually unarmed, at most a feeble rudimentary tooth.

This species is usually quite rufous, tinged with metallic lustre, but varies to a darker color, nearly as cupreous as *subtilis*. It was found at Jamesburg, N. J., July 4, 1890, in large numbers on the Sagittaria in the cranberry bogs not mixed with any other species. It does not occur in this vicinity on the lilies or reeds, and I have no doubt the Sagittaria is its food-plant.

Length 5—8 mm.; .20—.32 inch. *Habitat.*—Mass., N. Y., N. J., D. C.

D. distincta LeConte. Original description translated.

"Cupreo-æneous; thorax punctate, quadrate, narrowed behind, angles prominent, the sides moderately tuberculate, channeled, apical and basal margins reflexed; elytra with flat interstices, depressed at the suture, bi-impressed, the sides gradually declivous, the apex less truncate (compared with *hirticollis*). Posterior femora strongly clavate, armed with an acute tooth. Long. .36. Lake Superior."

Mesosternum narrower than the coxa; *first ventral* longer than the metasternum; *elytral tip* subtruncate; form slightly convex, second and third joints of antennæ nearly equal, punctuation similar to *subtilis*, but finer.

Male, pygidium acutely emarginate at middle; *female*, simply rounded.
Length 7—9 mm.; .28—.36 inch. *Habitat.*—Mich., Wis., Mass.

The sutural margin of the elytra is slightly sinuate in this species for a short distance, not exceeding one-tenth the length, near the apex. It seems to be rare, and I cannot separate it with the specimens before me from *torosa* Lec. It would be hazardous, however, to unite them without a larger series for comparison.

Var. **torosa** LeConte. Original description translated.

"Slightly elongate, blackish violet, head strongly torose: thorax alutaceous, sparsely, finely punctate, somewhat elongate, narrowed behind, angles prominent, sides tuberculate, disc subcanaliculate; elytra scarcely triangular, apex rounded, truncate, the disc rugose, bi-impressed; posterior femora moderately clavate, armed with a moderately acute tooth. Long. .25. Mass."

Mesosternum, etc., as in *distincta*.
Length 6—7 mm.; .24—.25 inch. *Habitat.*—Mass., D. C., Ill., Iowa.

D. Harrisii LeConte. Original description translated.

"Elongate, eyes scarcely prominent, orbit absent; elytra convex, apex truncate, antennæ slender, the second joint shorter; æneous, head scarcely torose, thorax elongate, densely rugosely punctate, scarcely narrowed behind, angles prominent; slightly canaliculate impressed in front of the base, the lateral tubercle scarcely prominent, the basal impression well defined. Elytra parallel, obliquely narrowed towards the apex, strongly punctured in rows, finely rugose. Antennæ annulate, the second joint half as long as the others. Long. .42. Pa. Very rare.

"Male, posterior femora incrassate, armed with an acute tooth.

"Female, posterior femora feebly incrassate, mutic (not dentate).

"A singular species, the small eyes suggesting *Statira* of the Lagriidæ."

Mesosternum narrower than the coxa; *first ventral* about equal to the metasternum; *elytral tip* truncate.

Pygidium acutely emarginate male, rounded quite broadly female. The female pygidium appears to be emarginate in two specimens, being somewhat elevated at middle, probably by accident.

This is the only large species with the sinuate elytral suture.

Length 10—11 mm.; .40—.44 inch. *Habitat.*—Mass., Conn., N. Y.

D. pusilla Say. Original description.

"Green, elytra brassy, tibiæ and tarsi rufous, second and third joints of antennæ equal. Head brassy green, very densely and confluently punctured, a well impressed frontal line, lateral lines none, no appearance of frontal tubercles; antennæ short, much less than half the length of the body, second and third joints equal, fourth hardly longer, joints dull rufous, blackish at tip. Thorax green, tinged with brassy, longer than broad, as densely punctured as head, middle and anterior edge a little elevated, longitudinal line none, lateral tubercles obvious. Elytra brassy green, a little tinged with cupreous, with striæ of punctures, three longitudinal indentations near the suture, of which the anterior one is widest and deepest, with a slight impressed line extending obliquely to the base, tip decurved and rounded. Beneath green, tinged with brassy, feet rufous, thighs at tip brassy green, posterior pair with a prominent angle beneath. Length rather more than ¼ inch."

This species has been known as *cuprea* Kirby, from which it does not differ. I subjoin Kirby's description also:

"Above copper colored, glossy underneath with a thick coat of cinereous pile; antennæ black, legs obscurely rufous, posterior thighs unidentate, prothorax subtransverse. Length of body 4½ lines. Taken in Canada by Dr. Bigsby. . . . Head downy channeled, mouth and palpi rufous, mandibles and antennæ black; prothorax rather wider than long, very minutely, thickly and confluently punctured and wrinkled, channeled with a pair of impressions on each side, anterior tubercles not prominent, scutellum downy; elytra very glossy, punctured in rows, a single anterior impression near the suture, truncated at the apex; three intermediate segments of the abdomen have a yellow margin; legs obscurely rufous, thighs bronzed in the middle, posterior thighs with a minute tooth near the apex."

Mesosternum narrower than the coxa; *first ventral* shorter than the metasternum; *elytral tip* rounded, not truncate, as described above. It is very little rounded, but compared with *subtilis* it is seen to be distinctly rounded. Sutural margin sinuate near the apex, the sinuation filled with a glittering impunctate plate; form convex, thorax depressed, third and second joints of antennæ subequal.

Male, pygidium truncate and slightly arcuately emarginate.

Female, pygidium more elongate, rounded; tooth of posterior femora smaller. The sexes of *cupreus* are not readily distinguished.

The color varies from bright reddish or cupreous, through many shades of metallic color, to a form nearly black. The legs are yellow or rufous in the majority of specimens; in a few they are nearly black, and constitute the variety *pyritosa* Lec.

The relative length of the antennal joints is not constant, and will not serve to separate *pyritosa*, as a species, as stated by Mr. Crotch. From some variation observed in the specimens before me, I am doubtful if it is a sufficiently defined variety even to be continued in the list.

The indentations of the elytra are somewhat variable in depth and consequent distinctness, but are never very marked. The species is sometimes mixed in collections with *æqualis* Say, and the depth of these indentations afford a convenient index for their separation.

Length 6—8 mm.; .24—.32 inch. *Habitat.*—Hud. Bay Terr., Can., Van., Wash., Oreg., Cal., Idaho, Mont., Wis., Mich., Col. A few of the numerous specimens are labeled Mass., N. Y. and N. J., and are perhaps correct, but the species appears to be more abundant in the North and West.

D. femoralis Kirby. Original description.

"Body bronzed, gilded with a greenish tint, very minutely and thickly punctured, not conspicuously hairy underneath. Frontal channel slight; antennæ, except the scape, which is bronzed, and mouth rufous; prothorax with an impression above the scutellum, anterior tubercles more than usually prominent, scutel rather large. Elytra with single slight anterior impression adjoining the suture; legs rufous, but the thighs, which are much incrassated, except the base and summit are green bronzed, posterior thigh without any tooth. Abdomen as in the preceding species, yellow. This species seems nearly related to *pusilla*." The posterior thighs are dentate in male, and the above description was made from a single female specimen.

Mesosternum, etc., as in preceding, also the sexual characters, except the posterior femora. It is but feebly differentiated from *cuprea*, and is rare in collections.

Length 8 mm.; .32 inch. *Habitat.*—Wash., Vanc.

D. emarginata Kirby. Original description.

"Body dark blue, clothed underneath with pile, in certain lights glittering like silver. Antennæ black, tubercles of the prothorax prominent. Elytra with an impression near the suture, last dorsal segment of the abdomen emarginate, thighs very thick, bronzed, posterior one with a stout tooth. This species comes very near *sericea*, but it is sufficiently distinguished by the deeply notched podex, the silver pile that clothes its body underneath, which in that species has a golden lustre."

Mesosternum narrower than the coxa; *first ventral segment* shorter than the metasternum; *elytra* rounded at tip, the sutural margin strongly sinuate near the apex; *form* convex, moderately elongate, second and third *antennal joints* nearly equal.

Male, pygidium acutely emarginate. *Female*, pygidium elongate, scarcely rounded. Posterior femora dentate in both sexes.

Varies but little from the dark metallic blue described by Kirby, but occasional specimens are nearly black.

Length 6—7 mm., .24—.28 inch. *Habitat.*—Vanc., Can., Cal., Wash., Col., Neb., Pa., Mass., N. H. Abundant.

D. metallica Ahrens. Dr. LeConte's description translated.

"Elytra subparallel, apex subtruncate or rounded, second and third antennal joints subequal, posterior femora but little elongate. Thorax narrowed behind, eyes with the orbits not produced. Elytra rather convex, parallel; apex rounded or feebly truncate, posterior femora armed with a tooth. Thorax rather elongate, less convex. Legs short, posterior femora moderately clavate, attenuate at base; form subelongate, shining. Head not torose, thorax rugulose, the disc smooth on each side, somewhat narrowed behind regularly, anterior angles prominent, lateral tubercles scarcely prominent, a deep impressed transverse channel before the base. Elytra rugose. Long. .23—.26. Pa."

"Male, antennæ longer, femoral tooth distinct. Female, antennæ shorter, femoral tooth obsolete. Varies metallic golden, green and blackish, also more or less rufous."

Mesosternum, etc., as in the preceding. *Pygidium*, truncate male, elongate and rounded female. The difference is not, however, strongly marked.

Length 5½—7 mm.; .22—.28 inch. *Habitat.*—N. H., Mass., Pa., Md., N. C., Fla., Ill. Abundant.

D. flavipes Kirby. Original description.

"Body bronzed copper with a golden lustre, clothed below with very short, somewhat silvery, decumbent hairs, the metallic splendor of the body being visible through them. Head thickly, minutely and confluently punctured or wrinkled, channeled between the eyes; antennæ testaceous, longer than the prothorax; prothorax subquadrangular, longer than usual in the genus, widely channeled, very minutely, thickly and confluently punctured and wrinkled, anterior tubercles large and not prominent. Elytra with two impressions adjoining the suture, elevated at the base; legs testaceous. Latitude 65."

Mesosternum narrower than the coxa; *first ventral segment* shorter than the metasternum; *elytra* rounded at apex, the sutural margin distinctly sinuate near

the apex; *form* convex, second and third *antennal joints* subequal; *posterior femora* dentate in both sexes.

Male, pygidium distinctly truncate. *Female*, pygidium rounded.

Varies from typical bronze color to a dark blue; it also varies in the depth of the thoracic grooves or channels.

Length 7—9 mm.; .28—.36 inch. *Habitat*—Mass., N. Y., Pa., Ill., Kan., Can., Mich. About thirty specimens examined.

D. rufa Say. Original description.

"Dull metallic rufous, front destitute of lateral impressed lines. Body totally dull rufous with a metallic gloss, particularly on the elytra. Head dusky, almost opaque, with much crowded, very small punctures, no appearance of tubercles, a very distinct impressed frontal line extending down between the antennæ, no appearance of impressed lines near the eyes; antennæ somewhat paler than the body, third joint longer than second; thorax longer than broad, minutely punctured, longitudinal line very distinct, a transverse impressed line on the posterior submargin, lateral tubercles rather prominent, obtuse, tubercle of the anterior angle distinct from the large tubercle, acute, elytra hardly obviously inequal near the suture, with striæ of punctures, tip decurved, almost truncated, or obtusely rounded; beneath, in a particular light, dull silvery sericeous, feet rufous. Length more than 3-16 inch."

With this species must be united *Kirbyi* Lac., described as follows:

"Thorax convex, legs short and stout, posterior femora elliptical, armed beneath with a strong tooth, not attenuate at base. Subelongate, cupreo-æneous, shining; thorax sparsely punctate cordate, angles rounded, lateral tubercles distinct, but barely prominent, a slight channel before the base strongly impressed; elytra scarcely rugose, interstices flat, impressed before the middle; legs and antennæ rufous, third joint half as long again as the second, the fourth a little shorter. Long. .28. Ga. Varies with the thoracic tubercle less distinct."

Mesosternum, etc., as in the preceding, and the sexual characters are the same. No variations are observed in color, and the insect is readily known by the convex shining thorax almost destitute of punctuation.

Length 7—7½ mm.; .28—.30 inch. *Habitat*—Can., N. H., Mass., N. Y., Ohio, and one specimen is labeled "Texas."

Apparently more rare, the collections examined containing together sixteen specimens.

Synonymy and Bibliography.

The greater part of the following synonymy is derived from the "Catalogus" of Gemminger and Harold, from Dr. LeConte's Synopsis, or from Mr. Crotch's paper. Of the remainder a part is due to comparisons made by Dr. Horn with the LeConte types at Cambridge, and the balance is the result of a comparison of the published descriptions. All the older names have been recognized, and in some instances those which have been in use have had to give way to them.

D. hirticollis Kirby, 1837, Faun. Bor. Am. iv, p. 226; Lec., 1851, Proc. Ac. Phil. v, p. 313: *rudicollis* Lacord., 1845, "Monographie," Mem. Soc. Liege, iii, p. 108.

D. pubicollis Suffrian, 1872, Stett. Zeit. p. 21; Cr. 1873, Proc. Ac. Phil. p. 21.

D. pubescens Lec. 1867, Trans. Am. Ent. Soc. ii, 55.

D. floridæ n. sp.

D. cincticornis Newman, 1838, Ent. Mag. v, p. 391; Lac., l. c.; *lucida* Lac., l. c.; Lec., 1851, Proc. Ac. Phil. v, p. 310; *rufipennis* Lac., l. c.; *pulchella* Lec., l. c.

Var. proxima Kirby, 1837, l. c.; Lec., l. c.; *episcopalis* Lac., l. c.; *quadricollis* var. Say, 1827, Journ. Ac. Phil. v, p. 282; *californica* Lec., Proc. Ac. Phil. 1861, p. 357.

Var. magnifica Lec., Agass. Lake Sup., 1850, p. 236; Proc. Ac. Phil. 1851, p. 310.

D. palmata Olivier, Ent. 1795, iv, 75, p. 8, t. 1, fig. 7 *a-c*; Lac., l. c.; Lec., l. c.; *claudicans* Germ., Mag. Ent. iv, 1821, p. 173; *militaris* Lac., l. c.; *assimilis* Lac., l. c.; *vicina* Lac., l. c.; *cærulea* Oliv., l. c. (all females).

D. hypoleuca Lac., l. c., 1845; Lec., l. c.; *texana* Cr., l. c.

Var. rufescens Lac., 1845, l. c.; Lec., l. c.

D. piscatrix Lac., 1845, l. c.; Lec., l. c.; *congener* Lec., l. c.; *alutacea* Lec., l. c.; *carolina* (male) Lac., l. c.; Suff., l. c.

D. subtilis Kunze, 1818, Mon. Neu. Schrift Ges. Halle, ii, 4, p. 14; Lac., l. c.; Lec., l. c.; Suff., l. c.; *ænea* Ahrens, 1810, Neu. Shrift. Ges. Halle, i, 3, p. 21; *confluens* Lec., l. c.; *confluenta* Say, l. c.; *fulgens* Lec., l. c.; Agass., Lake Sup. p. 236; *quadricollis* Say, l. c.: *ærea* Lac., l. c.

Var. rugosa Lec., l. c.

D. porosicollis Lac., 1845, l. c.; Lec., Proc. 1851, p. 312.

D. æqualis Say, 1823, Jour. Ac. Phil. iii, p. 428; Suff., l. c.; *confusa* Lac., l. c.; Lec., Agass. Lake Sup.; *geniculata* Germ., i, litt; *pallipes* Lac., l. c.

D. tuberculata Lac., 1845, l. c.; Lec., Proc. 1851; *rutila* Mels., 1846, Proc. Ac. Phil. iii, p. 159.

D. distincta Lec., 1850, Agass. L. Sup. p. 236; Proc. 1851: *æqualis* ‡ Kirby, l. c.

Var. torosa Lec., 1851, l. c.

D. Harrisii Lec., 1851, l. c.; *inermis* Harris mss.

D. pusilla Say, 1823, l. c.; Lec., l. c.; *cuprea* Kirby, 1837, l. c.; Lec., l. c.; *aurifera* Lec., l. c.; (also Agass. L. Sup.) *dives* Lec. l. c.; *cataractæ* Newn., l. c.; *fulvipes* Lac., l. c.

Var. pyritosa Lec., Rep. Surv. Pac. ix, 1857, p. 66.

D. femoralis Kirby, 1837, l. c.; Lec., Proc. 1851, p. 315; *Germari* Mann., Bull. Mosc. 1843, ii, p. 306; 1852, p. 368; Lac., l. c.; Esch., Dej. Cat.; *indica* Mels., l. c.; *flavipennis* Mann., l. c.; Lac., l. c.

D. emarginata Kirby, 1837, l. c.; Lac., l. c.; Lec., l. c.: *rugifrons* Newn., 1838, l. c.; *aurichalcea* Mels., *biimpressa* Mels., l. c.; *junci* Coup.

D. metallica Ahrens, 1810, l. c.; Kunze, l. c.; Lac., l. c.; Lec., l. c.; *gentilis* Lec., l. c.; *nana* Mels., l. c.

D. flavipes Kirby, 1837, l. c.; Lec., l. c.; *jucunda* Lec., l. c. (also Agass. Lake Sup.); *chalcea* Lac., l. c.; *parva* Lac., l. c.; *binodosa* Germ., Lac. l. c.

D. rufa Say, 1827, Journ. Ac. Phil. v, p. 283; *metallica* ‖ Say 1823, l. c.; *Kirbyi* Lac., 1845, l. c.; *affinis* ‖ Kby., l. c.; *sulcicollis* Lac., l. c.

D. dentata Fab., is a European insect, and the name should be dropped.

Revision of the genera and species of ANTHONOMINI inhabiting North America.

BY WILLIAM G. DIETZ, M. D.

Since the publication of "The Rhynchophora," (Proc. Amer. Philos. Soc. 1876) but few new species belonging to the tribe under consideration have been described, while the amount of material accumulated in our collections has been considerable. It was my intention, originally, to confine the following essay to Anthonomus proper; the discovery, however, of new and important characters, as well as a greater appreciation of others heretofore deemed of but secondary importance in the classification of genera of this tribe, has led me, step by step, to include all the genera and species occurring within our faunal limits. The Anthonomini of Europe have been made the subject of a monograph by Desbrochers des Loges (Monographie des Balaninidæ et Anthonomidæ d'Europe et de confines Mediterranées, 1867), which has, however, scarcely offered a suggestion that might have aided me in the study of our North American species. The genus Orchestes was similarly treated by Brisout (Monogr. Ann. Fr. 1865). Very recently a paper has been published on the species of Anthonomus inhabiting Great Britain; the latter publication I have not seen.

In taking a general comparative survey of the present tribe of Curculionidæ, as presented by our own with that of the European fauna, one is struck with the few points of close similarity encountered. Referring to Anthonomus proper, the European species, as far as I am able to judge by the not inconsiderable number represented in my collection, present far greater uniformity, structurally as well as in general habitus, than our own. In all of them the funicle of the antennæ consists of seven joints, and species entirely clothed with scales do not occur. The European genus Bradybatus *Germ.*, in which the claws are connate at base, is not represented in our fauna.

In defining the limits of the tribe, a modification of LeConte's arrangement becomes necessary. Several new genera have been included, whose position is somewhat doubtful, and which, with equal propriety, might have been placed in some other tribes of the Me-

corrhynchid series. One of these, Alycodes, whose affinity to the Erirrhini is well shown by the formation of the ventral segments, the covered pygidium and the simple claws, and by its toothed femora, would have to be placed after Dorytomus, but the obliquely truncated anterior thoracic opening, the prosternum short in front of the coxæ, the antennal formation, etc., have induced me to place it in the present tribe. Another aberrant genus, Euclyptus, resembles *Notolomus basalis* Lec. in its general appearance, and also in the ventral formation; the prosternum, however, is short in front of the coxæ, the pygidium freely exposed, and the appendiculate claws warrant its position here. Elleschus, placed by Lacordaire among the Tychiides, I have retained in the present tribe; the second, third and fourth ventral sutures are slightly bent backward at the sides; this character is also noticed in a few Anthonomi (*A. elegans, juniperinus*). Simple claws occur in a small number of species, distributed among several genera. This abnormality in the present tribe is the final result of a gradual reduction in development, passing from the bifid claws of some Anthonomi (Anthonomorphus) to the very small, though distinct tooth of Chelonychus and a few others, to disappears altogether in Epimechus, Ephelops, etc. A remarkable character exists in the subcontiguous middle coxæ of Magdalinops. As will be seen further on, considerable importance has been attached to the relative length of the ventral segments.

The sexes can generally be separated without much difficulty by keeping in view the following points:

Male.—Beak stouter, more coarsely sculptured and generally more opaque; antennæ inserted nearer the apex, or more correctly speaking, the beak as already pointed out by Jekel (Annales de la Soc. Entom. de France, 1864) is less prolonged beyond the insertion of the antennæ, the distance of the latter from the base is about equal in both sexes.

Female.—Beak more slender, less coarsely punctured and more shining; antennæ more remotely inserted from the apex.

The third and fourth ventral segments appear to be a trifle shorter in the males; the fifth is generally longer and rounded in the female; shorter, subtruncate, or emarginate in the male, permitting the pygidium to become more or less visible from below. The latter is more freely exposed in the male, rarely entirely covered by the apex of the elytra, while frequently only partially exposed or entirely concealed in the female.

The tibial armature, and especially the mucro of the posterior tibiæ, is more slender and longer in the male than in the female.

As is well known, all the members of the present tribe are phytophagous, and the greater number, no doubt, spermophagous. A few, like *A. sycophanta*, *P. cratægi*, *Coccotorus*, etc., are said to breed in galls. I regret that I have nothing new to offer in the life-history of these insects.

Family CURCULIONIDÆ.

Tribe ANTHONOMINI.

Mandibles bi-emarginate and three-toothed at tip; gular peduncle long; oral organs small.

Beak cylindrical, long and slender; more rarely moderately stout and shorter (Macrorhoptus, some Anthonomi). More or less curved in all, but nearly straight in Macrorhoptus and Cionistes. Scrobes commencing at a distance from the buccal opening (less remote in the subgenus Paranthonomus); straight or somewhat curved; directed against the middle or lower segment of the eyes; more rarely (Macrorhoptus, Cionistes, Pseudanthonomus and Ephelops) oblique and directed beneath the eyes.

Antennæ variable, long and slender in the great majority; inserted at a distance from the apex (less remote in Paranthonomus); subbasal in certain Orchestes (Alyctus *Thoms.*). Scape long and slender, rarely (Macrorhoptus, certain Orchestes) short and stout; incrassate at its distal extremity and generally impinging against the eye, except in Tachypterus and those genera having the scrobes oblique and directed beneath the eyes. Funicle five to seven jointed, glabrous; first joint stout, generally elongate; following joints variable, each with a verticel of six to ten stiff or flexible hairs; rarely (Acalyptus and Euclyptus) entirely pubescent. Clava elongate oval or elliptic, acuminate, pubescent; closely or more loosely articulate (first joint strongly glabrous in Magdalinops, some Anthonomi and Neomastix), rarely very elongate and very loosely articulate (Tachypterus and in the subgenus Leptarthrus), or broadly oval and closely articulate (Neomastix).

Eyes at least moderately large, rounded and remote from the prothorax; rarely (subgenus Anthonomorphus) small and subrostral in their position; widely separated above, and nearly flat or moderately convex in most; rarely (*A. elegans*, *leucostictus*; *Leptarthrus*, *Or-*

chestes) very prominent, and approximate upon the front; large, transversely oval and approximate beneath in Macrorhoptus. In a number of species the posterior margin of the eyes is more or less free and elevated, in consequence of which its surface is directed more anteriorly.

Head more or less rounded or conical, not deeply immersed into the prothorax (except Cionistes).

Prothorax wider than long (except *A. brunnipennis*); narrowed in front; anterior opening obliquely truncate (except Acalyptus). Very rarely (Macrorhoptus, subgenus Anthonomorphus and Trichobaropsis) emarginate antero-inferiorly and giving a feeble appearance of postocular lobes; base bi-emarginate, produced in front of the scutel; latter small, oval or rounded, densely pubescent or scaly.

Elytra variable, generally wider at the base than the prothorax; striato-punctate (striæ confluent at base in most Pseudanthonomi). The outer margin shows the following variation: in those species having the elytra ample, that is, completely concealing the pygidium, the outer margin of one elytron forms a continuous horizontal line in its juxtaposition with the other and the outer stria unites with the sutural stria at an almost right angle. On the other hand, in those species in which the pygidium is freely exposed, the outer margin of each elytron ascends towards the apex, forming an angle in which the pygidium becomes more or less visible, and the outer and sutural striæ unite at a more or less obtuse angle. In the text, the term dehiscent has frequently been used to denote the latter character, which varies greatly in extent, being most strongly marked in *A. profundus, elegans*, etc., and scarcely noticeable in *A. nebulosus, peninsularis*, etc.

Prosternum short in front of coxæ (long in Acalyptus, and moderately so in *Anth. rufipes* and *disjunctus*). Anterior coxæ contiguous, rather large and prominent; middle coxæ separated by the mesosternum (subcontiguous in Magdalinops); the latter generally narrow, very rarely (subgenus Anthonomocyllus) wider than long, between the coxæ. Metasternum moderately long (short in Anthonomocyllus); side pieces narrowed posteriorly. Posterior coxæ widely separated (only moderately so in Magdalinops).

Ventral segments variable in length; subequal in Macrorhoptus, Tachypterus, Magdalinops, and some Anthonomi. First and second segments elongate (scarcely elongate, with the first segment short behind the coxæ in Anthonomocyllus; very strongly elongate in

Anthonomopsis). Third and fourth segments shorter than the former, rarely (Alycodes, Elleschus and Euclyptus) very short. The fifth segment, aside from sexual differences as noted before, attains its greatest length in Alycodes, Elleschus, Euclyptus and a few species of Anthonomus.

The sutures are straight and deep, except the first, which is less deeply impressed (almost obsolete in Anthonomopsis); the latter is curved in Elleschus, Anthonomopsis and Euclyptus.

The pygidium varies in size; it is oblique and concealed in both sexes in Alycodes, Macrorhoptus, Magdalinops, Tachypterus and Elleschus; more or less exposed, at least in the male in all the others. The more perpendicular its position, the more freely exposed it becomes. It is inflexed in some males, where it fits into the emargination of the last ventral segment; this is most notably the case in Coccotorus, to a less extent in Anthonomocyllus and Neomastix. It is narrowly excavated in a longitudinal direction in the subgenus Paranthonomus.

Legs never very stout (except Nanops); thighs more or less clavate and generally toothed. Tibiæ generally slender; posterior of male curved in Anthonomocyllus and Cnemocyllus; toothed internally in *A. elegans* and *Leptarthrus irroratus*. The apical armature requires more than a passing notice. It consists either of a hook, unguiculum, arising from the apical articulating surface, curved inward at almost a right angle with the tibial axis, or else a mucro, a prolongation of the internal apical angle into a point, in the direction of or approximating to the longitudinal axis of the tibia. Being morphologically distinct, I have found differences in the armature of sufficient importance to be made use of in the separation of genera. The anterior and middle tibiæ are unguiculate, and the posterior mucronate in the majority of genera. All are unguiculate in Alycodes, Tachypterus, Magdalinops, Macrorhoptus, Chelonychus, Anthonomopsis, Elleschus and Nanops. Acalyptus has the anterior and middle tibiæ unarmed, the posterior feebly mucronate, while in Euclyptus all the tibiæ are unarmed, and in Xanthus the armature becomes very feebly developed.

Tarsi variable, never very stout (except some species of Elleschus); frequently long and slender; third joint bilobed, spongy or pubescent beneath, fourth joint generally of moderate length (short in Elleschus, very long in several species of Cnemocyllus). Claws somewhat approximate and armed with a large tooth in the great majority;

the tooth is either curved inward at the apex and approximate to, or else straight and parallel with the tooth of the other claw. The tooth is small and inconspicuous in a few Anthonomi and Nanops, and especially so in Chelonychus, where the claws are also bent backward. The claws are appendiculate, that is, armed with a broad tooth beneath in Elleschus, Euclyptus and Orchestes, and entirely simple and more widely divergent in Alycodes, Epimechus, Ephelops, Xanthus and Acalyptus.

The species of the present tribe are mostly small insects, a few almost minute; none in our fauna, at least, exceeding 6 mm., or .25 inch. in measurement.* The vestiture consists of pubescence or scales. In Anthonomochæta the pubescence is intermixed with erect setæ.

In conclusion of these introductory remarks, I desire to express my thanks to all who have kindly permitted the use of their material, especially Dr. G. H. Horn, Mr. E. A. Schwarz, Mr. H. Ulke, Mr. A. Balter, Mr. R. Rauterberg and Dr. John Hamilton. I am under great obligation to my friend, Dr. Horn, who kindly made comparisons for me with type specimens in the LeConte collection at Cambridge, and who again has undertaken the task to see this paper through the press.

Synopsis of Genera.

Claws toothed.
  Middle coxæ subcontiguous. Plate v, fig. 1.....(1) **Magdalinops.**
  Middle coxæ separated by the mesosternum.
    Posterior tibiæ unguiculate.
      Pygidium covered; claws armed with a long tooth.
        Beak rather short and stout; eyes placed latero-inferiorly, somewhat approximate beneath. Plate v, fig. 2.....(2) **Macrorhoptus.**
        Beak long and slender; eyes placed latero-superiorly, not approximate beneath. Plate v, fig. 3.....(3) **Tachypterus.**
      Pygidium uncovered, at least in the male; claws armed with a short tooth.
        Funicle of antennæ 7-jointed; claws long, flexed backward, subchelate. Plate vii, fig 30a. .....(9) **Chelonychus.**
        Funicle of antennæ 6-jointed; claws normal.
          Abdomen flattened; first and second segments elongate; pygidium scarcely exposed. Plate vii, fig. 26.....(6) **Anthonomopsis.**
          Abdomen convex; segments less unequal; pygidium freely exposed. (10) **Nanops.**
    Posterior tibiæ mucronate.

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* The measurement is taken from the anterior thoracic margin to the apex of the elytra.

Scrobes oblique, very short. Pl. v, fig, 4*a*.....(4) **Clonistes.**
Scrobes long.
Scrobes directed against the eye.
Funicle of antennæ 6- or 7-jointed; clava elongate, ovoidal.
(5) **Anthonomus.**
Funicle of antennæ 5-jointed; clava obovate. Plate vii, fig. 29.
(8) **Neomastix.**
Scrobes directed beneath the eye, fourth (rarely third) joint of funicle smaller. Plate vii, figs. 27 and 28...(7) **Pseudanthonomus.**
Claws appendiculate.
Hind femora saltatorial; eyes approximate above .....(15) **Orchestes.**
Hind femora normal; eyes not approximate above, third and fourth ventral segments very short, fifth long.
Tibiæ strongly armed at apex; pygidium covered. Plate vii, fig. 35*e*.
(14) **Elleschus.**
Tibiæ unarmed at apex; pygidium exposed. Plate vii, 39*a*.
(18) **Eucly ptus.**
Claws simple.
Hind tibiæ unguiculate; pygidium covered. Plate vii, fig. 34.
(13) **Alycodes.**
Hind tibiæ mucronate; prosternum short in front of coxæ.
Form convex; tibial armature very evident.
Scrobes directed against the eye..... ....(11) **Epimechus.**
Scrobes directed beneath the eye. Plate vii, fig. 33.....(12) **Ephelops.**
Subdepressed; tibial armature almost obsolete. Plate vii, fig. 37*a*.
(16) **Xanthus.**
Hind tibiæ scarcely mucronate; prosternum long in front of coxæ.
(17) **Acalyptus.**

MAGDALINOPS gen. nov.

Beak moderately long and rather robust; cylindrical, curved, slightly enlarged at the apex and also at the insertion of the antennæ; coarsely punctured. Scrobes commencing about the middle; foveiform in the beginning, becoming rapidly superficial and linear, and attaining the lower segment of the eyes; antennæ long, slender and shining; scape long, slightly thickened at the apex; funicle 7-jointed, first joint but little longer than the second, and not very stout; second joint longer than the third; joints 3–7 turbinate, outer ones longer, but not wider. Club ovoidal, shining, acuminate at apex; margin of joints undulating, fringed with pubescens. Eyes small, round, feebly convex and somewhat approximate above. Head subglobose; prothorax cylindrical, narrowed in front and somewhat constricted behind the anterior margin, which is emarginate above. Base bi-emarginate. Elytra elongate oblong, scarcely wider at base than the prothorax; sides nearly straight and parallel, behind gradually narrowed to, but not conjointly rounded at the apex, which is

slightly dehiscent and completely covering the pygidium; striæ very fine, punctures small, not closely approximate; interspaces flat. Prosternum short in front of the coxæ; middle coxæ subcontiguous, that is, very narrowly separated by the mesosternum, which ends in a point, and does not articulate with the metasternum behind. Metasternum long; posterior coxæ not widely separated; ventral segments subequal, third and fourth but little shorter than the second; fifth a little shorter than the preceding segment in the ♂ and of about equal length in the ♀. Pygidium concealed by the elytra and scarcely visible from below. Legs long and slender; thighs feebly clavate, mutic. Tibiæ slender, somewhat attenuate in their distal half, all armed with a hook at the apex, which is quite large and projecting at the anterior pair. Tarsi long and slender, first and second joints elongate triangular; third joint short, bilobed, lobes small, round; fourth joint very long and slender, about as long as the three preceding joints together. Claws long and slender, slightly divergent, and armed with a long, slender tooth.

This new genus is established upon an elongate, densely squamous species, remarkable for the construction of the antennal club and the almost contiguous middle coxæ.

M. vittipennis sp. nov. Pl. v, fig. 1.—Elongate-oblong, nearly parallel, black, densely clothed with grayish and grayish white, imbricate scales. Beak shining, naked, except at the base, subcarinate and substriate each side in its basal half. Head densely punctured and scaly; a long, impressed frontal line. Prothorax a little wider than long, densely and coarsely punctured with a narrow, smooth dorsal line, most evident at the middle. A broad stripe of grayish brown scales each side of the middle. Scutel round, small, white. Alternate elytral interspaces a little wider and clothed with paler scales. Scales on the darker interspaces less dense. Long, 4--5 mm ; .16—.20 inch.

Hab.—California, exact locality not given. Two females and one male; coll. of Dr. Horn and H. Ulke.

MACRORHOPTUS Lec.

Beak stout, cylindrical, about as long as the prothorax; straight, except at base, and densely scaly. Scrobes commencing one-quarter (♂) or two-fifths (♀) from the apex; deep, oblique and directed beneath the eyes and coalescing behind. Antennæ rather short, stout; inserted about one-third (♂) or two-fifths (♀) from the apex. Scape short, gradually thickened to apex; funicle 6-jointed, first joint rather short and robust, second joint a little longer than the third, joints 2–6 gradually wider, closely articulate; sixth joint subcontinuous to the club; whirls of numerous stiff bristles. Club

ovoidal, pubescent. Eyes transversely oval, somewhat approximate beneath. Head convex, punctured and coarsely pubescent; front foveate. Prothorax wider than long, narrowed in front; sides nearly straight behind, rounded in front; antero-inferior margin emarginate, giving rise to the appearance of feeble postocular lobes. Hind angles rectangular, slightly exserted. Base scarcely emarginate each side. Elytra oblong, very little wider at the base than the prothorax; sides nearly parallel, broadly and conjointly rounded at the apex, which covers the pygidium completely. Striæ almost obsolete; surface densely punctured, each puncture bearing a scale. Ventral segments subequal, third and fourth a little shorter than the others. Legs moderately long; thighs feebly clavate, anterior armed with a long triangular tooth, middle and posterior mutic. Tibiæ gradually widened toward the apex; outer angle rounded; anterior feebly curved, middle and posterior straight, all armed with a small hook at the apex. Tarsi moderately stout, posterior more slender, third joint bilobed. Claws armed with a long tooth, which approximates the other near the apex.

The whole surface is uniformly punctured and scaly. The species resembles in form certain Magdalis. LeConte's statement that the tibiæ are not hooked at the apex is incorrect; the hook is small, but distinct.

Two species occur in our fauna which heretofore have been united under *estriatus* Lec.

Prothorax less densely punctured; scaly vestiture not intermixed with erect, clavate bristles ..... **estriatus** Lec.

Prothorax densely punctured; scales intermixed with erect, clavate bristles. **hispidus** sp. nov.

1. **M. estriatus** Lec. Plate v, fig. 2.—Oblong, black; antennæ and legs ferruginous, not very densely clothed with elongate, ashy gray scales, not intermixed with erect bristles. Prothorax less densely punctured. Long. 2.5–3 mm.; .10—.12 inch.

Hab.—Texas, Kansas, Illinois, California (LeConte).

2. **M. hispidus** sp. nov.—This species resembles very closely the preceding, from which it differs as follows: more densely clothed with pale gray or brownish scales, which are longer and broader than in *estriatus*, and intermixed with white, erect, club-shaped bristles, which are especially conspicuous on the sides of the prothorax, where they are directed toward the median line, and are arranged in a single row on each elytral interspace. The prothorax is densely and a trifle more finely punctured, with a broad stripe of pale brown scales along the middle; sides paler. Long. 2—3.2 mm.; .08—.13 inch.

Hab.—Arizona. Coll. of Dr. Horn, E. A. Schwarz and my own. Some specimens are of a uniform pale gray color.

TACHYPTERUS gen. nov.

Head moderately convex. Eyes rather small, round and moderately convex. Beak long and slender; scrobes deep, linear, directed toward, but not quite attaining the eyes; antennæ inserted at a distance from the apex, slender; scape not attaining the eye; funicle 7-jointed, first joint long, 2–7 short. Clava elongate, acuminate at apex, rather loosely articulate. Prothorax wider than long, constricted at apex, sides rounded; base bisinuate. Elytra wider than the prothorax at base; each elytron protuberant at the base, fitting into the emargination at the base of the prothorax; strongly convex and declivous posteriorly, concealing the pygidium. Surface tuberculate or uneven, striæ punctured. Prosternum moderate in front of the coxæ. Mesosternum rather narrow between the coxæ. Metasternum short, about as long as the first ventral segment at middle. Abdomen broadly ovate, first and second segments moderately long, subequal, third and fourth shorter, fifth longer. Legs moderately stout. Thighs feebly clavate, anterior bidentate, middle and posterior unidentate. Tibiæ somewhat compressed, anterior subangulate about the middle, bisinuate; articulating surface oblique, all unguiculate at the apex. Tarsi rather stout; first joint a little longer than the second; third joint deeply bilobed, fourth moderate; spongiopilose beneath. Claws cleft, teeth convergent.

The type of this genus is *Anth. quadrigibbus* Say, a common species found over our whole territory, and to which I have to add a new species. They are readily distinguished as follows:

Elytra strongly tuberculate, alternate interspaces more prominent, pubescence dense.....**quadrigibbus** Say.
Elytra feebly tuberculate, interspaces equal, pubescence sparse...**consors** n. sp.

1. **T. quadrigibbus** Say. Plate v, figs. 3-3*a*.

The generic description with the above synoptic reference, will readily distinguish this well-known species from any other. A large tubercle is situated on the third interspace on the summit of the declivity, another on the fourth nearer the apex. There are also some irregular elevations on the fifth and seventh interspaces. The elytra are transversely impressed behind the scutellum, and this space is densely clothed with whitish pubescence. The prothorax has three narrow lines of whitish pubescence, while a lateral stripe of bright yellow pubescence is continued upon the densely pubescent side pieces of meso- and metathorax.

The species varies considerably in the development of the tubercles, as well as in size and general coloration. Common in the Spring on *Cratægus oxyacantha* L. The sexes are readily distinguished by the usual characters. Long. 3–4.5 mm.; .12–.18 inch.

Hab.—Occurs probably over our whole territory. Specimens are before me from the Eastern and Western States; Texas, California.

2. **T. consors** n. sp.—Ovate, rufotestaceous, thinly pubescent. Head convex, punctured with a fine frontal carina; frontal puncture deep. Eyes moderately convex, small. Beak long and slender, feebly curved, median elevated line not pronounced, substriate each side and densely punctured. Antennæ slender, second joint scarcely longer than the third. Prothorax broadly rounded on the sides and feebly constricted at apex, base not strongly bisinuate. Surface very coarsely punctured with a dorsal line of condensed, white pubescence. Elytra subquadrate, slightly wider behind and scarcely one-half longer than wide at the base; humeri rounded, a transverse impression behind the scutellum; striæ feebly impressed, punctures moderate and rather closely placed; a small tubercle on the third interspace on the summit of the declivity; interstices equal, slightly convex, roughened; underside of thorax more densely pubescent. Long. 2.75 mm.; .11 inch.

Hab.—Oregon. An unique ♀ in Dr. Horn's coll. represents this species.

CIONISTES gen. nov.

A short, stout, convex species from California, densely clothed with fine pubescence, forms the type of this genus.

Beak moderately stout, cylindrical, slightly widened toward the apex and almost straight; striato-punctate. Scrobes short, oblique, evanescent posteriorly. Antennæ inserted about one-half (♂) or two-fifths (♀) from the apex; scape slender, impinging against the lower segment of the eye; funicle rather stout, 7-jointed, first joint long, not very stout; joints 2–4 a trifle longer than wide, 5–7 transverse; club elongate-ovate, very closely articulate. Head deeply immersed into the prothorax; front rather flattened with a deep, round fovea. Eyes round, approximate above. Prothorax wider than long, strongly narrowed in front; surface uneven; base straight each side, produced in front of the scutellum, the latter oblong. Elytra wider at base than the prothorax; humeri prominent, rounded, a little widened to behind the middle and rapidly narrowed to and conjointly rounded at apex, which covers the pygidium completely; surface irregular, tuberculate, very convex, striate; striæ obsolete on the post-scutellar space and toward the margin of the elytra; punctures obsolete, or at least concealed by the dense pubescence; inter-

spaces densely punctulate. Prosternum very short in front of coxæ. Mesosternum moderately wide, but short, between the coxæ and almost perpendicular in front. Metasternum short, as long as the first ventral segments at middle. Abdomen broadly ovate; first and second segments rather short, segments 3–5 about equal, and each but little shorter than either of the former segments; pygidium not visible, under surface sparsely pubescent. Legs rather short and stout. Femora clavate, all toothed. Tibiæ short, slightly compressed, subparallel, feebly bisinuate internally; articular surface scarcely oblique. Anterior and middle tibiæ feebly unguiculate, posterior mucronate at apex. Tarsi stout, first joint but little longer than the second, and each with several suberect, stout, clavate bristles, arising from the upper surface; third joint deeply bilobed. Claws armed with a large, obtuse tooth.

Related to the preceding genus by the form of the abdomen, the covered pygidium and the irregular, tuberculate surface, but readily distinguished from it by the mucronate posterior tibiæ and from all others by the short, oblique scrobes.

A single species.

1. **C. insolens** n. sp. Plate v, figs. 4–4a.—Rufo-piceous, densely clothed with fine yellowish pubescence. Prothorax with a prominent, semi-circular elevation, in front of which there is a broad, transverse impression; broadly impressed each side of base. The elevated points are clothed with pale, the depressions with fulvous pubescence. Elytra broadly oval, a trapezoidal space in front and extending about one-third the length of the elytra, rufous and clothed with pale ochreous pubescence. The rest of the surface is dark piceous and clothed with yellowish gray pubescence; an oblong tuberosity on the third, fifth and seventh interspaces about their middle and arranged in a somewhat oblique line. A small but acute tubercle on the third interspace posteriorly. Posterior to the basal margin is a broad, transverse elevation and between this and the oblique row of tubercles each side, a broad impression; another tubercle is situated on the fifth and seventh interspaces anteriorly. The under surface is more thinly pubescent. Long. 2.25—2.5 mm.; .09—.10 inch.

Hab.—California; exact locality not given. Collections of Dr. Horn and E. A. Schwarz. The tubercles vary in development.

ANTHONOMUS Germ.

As here restricted, the genus presents the following characters: Beak variable, generally long and slender, more rarely shorter and stouter. Scrobes long, directed against the eye. Antennæ variable; scape reaching the eye, or very nearly so; funicle 6- or 7-jointed. Club ovoidal, annulate in some, more loosely articulate in others.

Elytra distinctly striate and punctured, leaving the pygidium, at least in the male, more or less exposed. Prosternum short, very rarely (*A. rufipes, disjunctus*) somewhat elongate in front of the coxæ. Mesosternum at least moderately wide between the coxæ. Ventral segments variable; pygidium visible. Thighs generally toothed, more rarely mutic. Tibial armature distinct, anterior and middle tibiæ unguiculate, posterior mucronate at apex. Claws generally armed with a large, distinct, more rarely with a small, inconspicuous tooth.

This genus contains by far the largest number of species, which vary greatly, not merely in their general habitus, but also in more important characters, possessing at least a subgeneric value. I have deemed it, therefore, expedient to establish a number of subgenera, in preference to still further increasing the number of those having full generic value. As will be seen, I have included *Coccotorus* Lec. in the present genus, as the unusually deep emargination of the fifth ventral segment of the ♂, has after all but a relative value, and should therefore not remain distinct.

Synopsis of the subgenera of Anthonomus.

Fifth ventral segment of male deeply emarginate. Plate v, fig. 5.
(1) **Coccotorus.**

Fifth ventral segment of male not or only feebly emarginate.
Ventral segments 1–4 short, fifth longer in the male; first segment short behind the coxæ. Middle coxæ more widely separated. Plate v, figs. 6*a*, 6*b*..... .....(2) **Anthonomocyllus.**
First ventral segment not short behind the coxæ. Middle coxæ less widely separated.
Posterior tibiæ alike in both sexes.
Eyes small, subrustral. Plate v, figs. 8, 8*a*.....(3) **Anthonomorphus.**
Eyes at least moderately large, position normal.
Pygidium deeply excavated longitudinally..... (6) **Paranthonomus.**
Pygidium convex, not excavated.
Vestiture of derm not intermixed with erect setæ.
Prosternum deeply emarginate in front; seventh joint of funicle subcontiguous to the club. Pl. v, fig. 9...(4) **Trichobaropsis.**
Prosternum not emarginate in front, last joint of funicle distinct from the club.
Club strongly elongate, joints loosely articulate. Plate v, figs. 10*a* and 11..... .....(5) **Leptarthrus.**
Club elliptic or ovoidal, not very loosely articulate.
(7) **Anthonomus.**
Vestiture of derm intermixed with erect setæ..(8) **Anthonomochæta.**
Posterior tibiæ of male curved. Plate vi, figs 20*a*, etc.....(9) **Cnemocyllus.**

Subgenus Coccotorus Lec.

Beak about as long as head and prothorax; cylindrical and slightly widened at apex, nearly straight, carinate from base to apex, striate each side; coarsely punctured (♂), perfectly smooth beyond the insertion of the antennæ in the female. Antennæ long and slender, inserted one-quarter (♂) or one-third (♀) from the apex. Scape long and slender, slightly thickened at the distal end. Funicle 7-jointed, first joint elongate, second longer than the third; joints 3–7 subturbinate. Club elongate oval, pubescent; joints of about equal length and rather closely connected. Eyes rather small, round and very prominent. Head punctured and pubescent; front deeply foveate. Prothorax wider than long; sides rounded in front, constricted at apex. Surface coarsely and irregularly punctured and densely clothed with long, coarse pubescence, except a narrow, smooth dorsal line, extending from base to about the middle. Elytra oblong, wider at base than the prothorax. Striæ fine, punctures small; the third and fifth interspaces are tufted at base. Metasternum about as long as the first ventral segment; third and fourth segments together, scarcely longer than the second. The fifth segment is deeply emarginate in the male, subtruncate in the female. The pygidium is fully exposed, inflexed (♂) or perpendicular (♀). Legs moderately stout; femora clavate, toothed. Tibiæ nearly straight, anterior bisinuate internally. Tarsi long, third joint deeply bilobed, fourth long and slender. Claws not approximate at base, and armed with a long tooth.

The two species are distinguished as follows:

Beak not longer than head and thorax and more coarsely punctured. Outer edge of anterior femoral tooth nearly perpendicular. Pubescence of elytra fine ..... **scutellaris** Lec.

Beak slender, longer than head and thorax, more finely and less densely punctured. Outer edge of anterior femoral tooth very oblique. Elytra coarsely pubescent ..... **hirsutus** Brun.

1. **A. scutellaris** Lec. Plate v, fig. 5.—Oblong, rufo-piceous, beak and legs ferruginous. Base of beak, head and prothorax, densely clothed with long fulvous hair. Scutel yellowish pubescent. Elytral striæ remotely punctured; interspaces flat, with small, distant tufts of semi-erect, seal-brown hair, which, however, are more prominent on the base of the third and fifth interspace, rest of surface clothed with a fine, pale grayish pubescence, except the first interspace, which is more or less fulvous. Femoral teeth rather large; outer edge of tooth of anterior thigh straight, or nearly perpendicular. Long, 5–6 mm.; .20–.25 inch.

Hab.—Ill., Texas, Kan., Ga. Varies in size and length of rostrum.

C. (*Anth.*) *prunicida* Walsh. I have not seen. According to LeConte it is identical with *scutellaris*.

2. **A. hirsutus** Brun.—Differs from *scutellaris* as follows: Beak more slender and longer than head and thorax, shining and rather finely punctured; second joint of funicle much shorter than the first and but little longer than the third. The pubescence of the elytra is long and preponderately white, mottled with fulvous and spots of seal-brown; middle two-quarters of sutural interspace bright fulvous. The outer edge of the anterior femoral tooth is very oblique; under surface clothed with long, white hair. Long. 5 mm.; .20 inch.

Hab.—West Point, Nebraska.

The above description has been taken from a single ♂ specimen in the collection of Mr. E. A. Schwarz, who obtained it from Mr. Bruner. This appears to be a distinct species, but having only a unique specimen for comparison, larger series may prove the above characters to be inconstant, and therefore consider the matter still *sub-judice*.

Subgenus Anthonomocyllus.

This subgenus has for its type *A. elegans* Lec. The beak is long and slender, feebly curved, striate and carinate. Antennæ inserted two-fifths (♂) or one-half (♀) from the apex; scape slender, impinging against the eye; funicle 7-jointed. Club not closely articulate, somewhat shining and sparsely pubescent. Eyes convex, posterior margin elevated, free. Head globose, punctured and pubescent. Prothorax convex, wider than long, and about twice as long above than below; strongly narrowed in front; base bisinuate. Elytra wider at base than the prothorax, broadly oval and very convex; striato-punctate. Prosternum very short in front of the coxæ. Mesosternum rather wide between the coxæ, declivous in front. Metasternum short. Middle coxæ rather widely separated. First ventral segment short behind the coxæ. Male: segments 1–4 short, nearly equal, fifth elongate, about twice as long as the preceding and emarginate. Female: segments subequal, fifth not elongate. Pygidium exposed, convex; inflexed and more freely exposed in the male, perpendicular and less exposed in the female. Legs rather stout; femora strongly clavate, all armed with a large, acute tooth. Tibiæ stout, toothed or not internally; posterior tibiæ curved in the male, straight in the female. Tarsi rather slender, third joint broadly bilobed, last joint long. Claws armed with a long, slender tooth.

To this genus I refer also *A. pusillus* Lec. and two new species, which, while presenting the essential characters, differ by the first

two ventral segments being a little longer and the anterior tibiæ not toothed internally. In fact, they may be looked upon as forming the end of a series, of which *A. elegans* forms the type, and where intermediate forms are wanting, or at least not represented thus far within our faunal limits. All are robust, broadly oval and very convex. The vestiture consists of scales intermixed with a fine, semi-procumbent pubescence.

They are distinguished as follows:

Eyes protuberant, narrowly separated above. Plate v, fig. 7*a*.
Anterior and middle tibiæ toothed internally, densely clothed with variegated scales ..... **elegans.**
Tibiæ not toothed internally, upper surface predominantly pubescent, scales arranged in spots. ..... **leucostictus.**
Eyes feebly convex, widely separated above, surface thinly clothed with whitish scales.
Larger, second joint of funicle longer than the third; denuded elytral fascia more or less distinct ..... **Hamiltoni.**
Smaller, second joint of funicle scarcely longer than the third; elytral fascia obsolete ..... **pusillus.**

1. **A. elegans** Lec. Plate 5, figs. 6, 6*a*, 6*b*.—Broadly oval, dark brown, densely clothed with small scales, variegated in silvery white, gray, buff and brown on the upper surface and grayish white intermixed with brown on the under surface of the body and legs. Beak ferrugineous and somewhat shining, punctured and pubescent at base; median elevated line feeble; substriate. Antennæ slender, second joint of funicle longer than the third; joints 3-7 oblong, equal. Eyes large, transversely protuberant and rather narrowly separated above. Frontal fovea deep, elongate. Head with large, shallow punctures, transversely rugulose and clothed with large, elongate scales. Prothorax strongly and rather suddenly narrowed in front and constricted at the apex; rounded on the sides. A broad transverse groove anteriorly; surface densely punctured and squamous. Scales brown, a narrow dorsal line and a transverse one joining the former about the middle, of silvery white scales. A large buff colored spot each side of the median line in front. Elytra rather suddenly wider at base than the prothorax and somewhat protuberant each side of the scutel; sides rounded, almost imperceptibly wider behind the middle, strongly declivous behind. Striæ fine; punctures concealed by the scales. The pattern formed by the scales is complex; the ground color is a silvery gray to grayish brown. Scutel and a spot each side of the suture behind it white; base, sides, two approximate, oblique lines before the middle enclosing a silvery white line and continued along the sutural interspace to a posterior transverse fascia, brown. The space between the latter and the anterior oblique band is yellowish brown. A humeral spot and another each side of scutellum seal-brown. Each ventral segment with a row of long, blackish hairs. Thigh armed with a large triangular tooth. Tibiæ bisinuate, armed with a triangular tooth about two-fifths from the base; posterior tibiæ of ♀ mutic. Long. 2.5 mm.; .10 inch.

Hab.—Florida. Coll. of Dr. Horn and Mr. E. A. Schwarz. This is the most prettily colored Anthonomid in our fauna.

2. **A. leucostictus** n. sp. Plate v, figs. 7, 7a.—Broadly oval, robust, convex, pitchy brown, thinly clothed above with suberect, whitish pubescence; underside densely clothed with cream-colored scales, concealing the surface, except on the abdomen, where the scales become more piliform. Beak slender, opaque, feebly curved towards the apex; 4-striate from the base to a little beyond the insertion of the antennæ; median elevated line entire, expanding at the apex into an elongate triangular, smooth and shining space. Antennæ slender, testaceous, inserted about two-fifths from the buccal opening; first joint of funicle long and slender, second joint longer than the third, which is a trifle longer than the fourth; following joints rounded; club elongate, dusky and rather closely articulate. Eyes very convex, semi-globose, and rather narrowly separated above. Head short, finely rugulose and remotely punctured with a few, short hairs; frontal fovea deep, elongate. Prothorax almost twice as wide as long, strongly narrowed in front; base bisinuate, sides strongly rounded in front of middle and broadly constricted at the apex; surface densely and coarsely punctured, punctures irregular in shape, each one bearing a short, yellowish brown, scale-like hair. Elytra about one-fifth wider at the base than the prothorax; broadly oval, opaque. Striæ sharply impressed, rather wide, but not deep; punctures moderately large and somewhat remote; interspaces slightly convex, distinctly rugose. Scutellum, intra-humeral spot, a post-median interrupted transverse line, consisting of larger spots, another subapical, transverse line, and a few scattered spots in the periscutellar space composed of large, cream-colored scales. Legs moderately stout, sparsely pubescent; femora clavate, all armed with an acute, triangular tooth; a small patch of condensed pubescence on the anterior surface, about one-third from the apex. Tibiæ moderately stout, slightly widened toward the apex, anterior feebly bisinuate, middle and posterior straight. Long. 2.7 mm.; .11 inch.

Hab.—Texas.

Agrees with *A. elegans* in form, convexity, and the closely approximated eyes, but differs markedly by the upper surface being simply pubescent, with spots and lines of large, condensed scales.

A unique ♂ in my collection. The first ventral segment is a little longer behind the coxæ, and the pygidium less inflexed than in *elegans*.

3.—**A. Hamiltoni** n. sp.—Oval, ferruginous, thinly clothed with whitish or pale yellowish scales, which are larger on the prothorax and underside of body and intermixed with fine, semi-procumbent pubescence. Beak long, moderately slender, rather shining, scaly at the base; median carina distinct; substriate and finely punctured. Antennæ moderately stout; second joint of funicle slender and twice as long as the third. Club dusky, not closely articulate; first joint shining, not pubescent. Eyes moderately convex, not approximate above. Head more remotely punctured, rugulose; front squamous, puncture small, elongate. Prothorax strongly narrowed in front; apex slightly constricted; sides rounded; a transverse groove behind the anterior margin; surface rather densely punctured and rather thinly clothed with elongate scales intermixed with coarse pubescence. Elytra a trifle wider at base than the prothorax, longer than wide; humeri rounded; sides broadly rounded from base to apex. Striæ im-

pressed; punctures moderate, rather remote, and not concealed by the scales; interspaces flat, rugulose. Scales small, uniform in color. Scutellum, scutellar and intra-humeral spot more densely scaly. An oblique, angulated anterior and a transverse posterior line coalescing near the suture and enclosing a partially denuded area. Thighs robust, armed with a subspiniform tooth, smaller on the hind pair. The tibiæ are bisinuate internally; posterior of ♂ curved inward near the apex. Claws blackish. Long. 2.2 mm.; .09 inch.

Hab.—Florida.

It gives me pleasure to dedicate this species to my friend and colleague, Dr. J. Hamilton, whose zeal in behalf of entomology is well known.

Three specimens; coll. of Dr. Hamilton. The second ventral segment is a little longer than the third or fourth, and the fifth a little shorter than the two preceding segments united. It is closely related to the following species:

4. **A. pusillus** Lec.—Not very unlike the former, from which it differs in the following characters: much smaller, more broadly oval; ferruginous to piceous. The scales are smaller, and the pubescence more conspicuous. Front less squamous; fovea obsolete. Antennæ a trifle stouter; second joint of funicle stout and but a trifle longer than the third; outer joints more distinctly wider. Elytra more distinctly wider at base than the prothorax and scarcely longer than wide. Markings obscure, almost obsolete. The tooth on the hind femur is scarcely noticeable. Tibiæ feebly bisinuate internally. The third and fourth ventral segments are very short in the male; the second longer than the first behind the coxæ, and the fifth as long as the two preceding segments together. In the female the second and fifth segments are about equal, the others shorter. Long. 1.3 –2 mm.; .05–.08 inch.

Hab.—Massachusetts.

Subgenus **Anthonomorphus.**

Distinguished from the other subgenera by the eyes, which are small, rubrostral in their position and somewhat approximate upon the front. The beak, which is slender, has four grooves or deep striæ, extending from the base to about the insertion of the antennæ. Scape of antennæ slender; funicle rather stout, more so in the female; first and second joints elongate, joints 3–7 short, about as long as wide (♂), or somewhat transverse (♀). The head is conical; front foveate. Prothorax wider than long, strongly narrowed in front; base bisinuate, emarginate at its antero-inferior margin, giving the appearance of feeble postocular lobes; surface coarsely punctured. The elytra are elongate-oval, but little wider at the base than the prothorax. Mesosternum narrow between the coxæ. Ventral segments subequal, third and fourth but little shorter than the others.

Legs slender; femora clavate, at least the anterior bidentate. Tibiæ feebly bisinuate internally; apical armature strongly developed. Tarsi slender, first joint elongate, third feebly bilobed, spongio-pilose beneath, fourth joint moderately long. Claws large, broad, slightly divergent and deeply bifid, especially the anterior; teeth scarcely approximate to each other. The vestiture consists of coarse pubescence.

The type of this subgenus is *A. fulvus* Lec., to which I have to add two new species from Lower California, very recently received by Mr. H. Ulke. The species are at once recognized by the eyes being situated at the base of the rostrum; they are smaller and narrower in *A. fulvus* than in the other species. They are readily distinguished as follows:

Pubescence forming patterns on the elytra; anterior femora alone bidentate. **fulvus.**

Uniformly pubescent; all the femora bidentate.

Black; head constricted behind the eyes, which appear more prominent. **peninsularis.**

Ferruginous; head not constricted behind the eyes; front transversely impressed ..... **pervilis.**

A. fulvus Lec. Plate v, figs. 8, 8a.—Elliptic, ferruginous, thinly clothed above with coarse, pale yellowish pubescence. Beak not very slender, quadrisulcate, sulci punctured. Antennæ inserted one-third (♂) or two-fifths (♀) from the apex. Eyes transversely oval, slightly convex. Head finely and remotely punctured, moderately constricted behind the eyes; frontal fovea large and deep. Prothorax about one-half wider than long; sides rounded; apex feebly constricted; surface very coarsely and subconfluently punctured, each puncture bearing a yellowish hair; pubescence condensed along the median line. Elytra a trifle wider at the base than the prothorax, sides very feebly rounded, gradually narrowed to and slightly separated at the apex; striæ fine, feebly impressed; punctures moderate, elongate, coarser and more deeply impressed at the base; interspaces flattened, remotely punctulate, pubescence condensed in lines as follows: short post-scutellar line, second and eighth interspace from near the base to the apex, apical half of tenth, an anterior oblique and posterior subtransverse line behind the middle and extending from the eighth interspace to the third, where they coalesce; between these latter lines another exists on the sixth interspace. Scutellum densely pubescent. Underside punctured, more densely pubescent, especially on the thoracic side pieces. Long. 4.5—5 mm.; .18—.20 inch.

Hab.—Kansas, Indian Territory, Texas.

A readily recognized species.

A. peninsularis n. sp.—Oblong oval, pitchy black, conspicuously clothed with long, coarse, dirty white pubescence, which is scarcely more dense beneath than above. Beak slender, curved, striæ well impressed, coarsely punctured, apical portion more remotely punctured (♂). Antennæ slender, inserted two-

fifths (♂) from the apex; second joint of funicle longer than the third. Eyes almost round, moderately convex. Head distinctly constricted behind the eyes, giving the latter the appearance of prominence; rather coarsely, but not densely punctured, sparsely pubescent; frontal fovea elongate, superficial. Prothorax less than one-half wider than long and nearly twice as wide at the base than at the apex, latter scarcely constricted; sides regularly rounded; surface coarsely and rather densely punctured, evenly pubescent. Elytra oblong oval, distinctly wider at the base than the prothorax; sides feebly, apex more strongly and conjointly rounded. Striæ wide, deeply impressed, especially nearer the base, punctures moderately large and approximate, especially nearer the base; interspaces feebly convex, punctulate and somewhat rugose; surface evenly pubescent, scutellum more densely so; underside of thorax finely and more remotely, abdomen densely and more coarsely punctured; pygidium slightly exposed (♂). Legs slender; femora feebly clavate, bidentate, outer cusp of middle and posterior feeble. Tarsi slender, claws bifid, tooth long and slender. Long. 5.5 mm.; .22 inch.

Hab.—Lower California; exact locality not given.

A ♂ specimen in Mr. H. Ulke's collection, very recently received. Structurally, this species agrees very closely with the foregoing, but the eyes are nearly round, the elytra almost conjointly rounded at the tip and all the femora are bidentate. In coloration and vestiture, it is totally different.

A. pervilis n. sp.—Agrees with the preceding in all particulars, except the following: ferruginous, underside of thorax piceous. Head not constricted behind the eyes, which are scarcely convex; a transverse, deeply indented line above the eyes. The pygidium is very little exposed. Long. 5 mm.; .20 inch.

Hab.—Lower California.

A ♀ specimen, received with the foregoing from Mr. H. Ulke for determination. It is with some reluctance that I record this species as distinct from *peninsularis*, but the strikingly different coloration, which is not due to immaturity, the head not constricted behind the eyes and the deep, transverse indentation above the eyes, seems to warrant its separation, until more extensive series of specimens shall establish its identity with the former.

Subgenus Trichobarapsis.

A coarsely pubescent species from Texas, having the prosternum emarginate and the seventh joint of the funicle continuous to the club, forms the type of this subgenus. The anterior and middle femora are bidentate, posterior with a single tooth. The tibiæ are bi-emarginate internally, and the armature well marked. The tarsi are slender; claws broad and widely separate, armed with a tooth nearly as long as the claw.

A. texanus n. sp. Plate v, fig. 9.—Elongate oval, rufo-piceous, densely clothed above and beneath with very coarse, yellowish gray pubescence. Beak moderately slender, somewhat depressed and shining; punctured and pubescent at the base; 4-sulcate from the base to the insertion of the antennæ, sulci punctured; beyond, finely and remotely punctured. Antennæ not very slender; second joint of funicle much longer than the third; joints 3-7 subturbinate, somewhat transverse and becoming gradually wider; seventh joint continuous to the club. Verticels consisting of about 8-10 stiff, long white bristles. Club elongate ovate, joints rather closely connate, pubescent. Head convex; occiput finely, front somewhat flattened and more coarsely punctured; transversely impressed behind the eyes, frontal fovea deep, elongate. Eyes moderately convex, not free behind. Prothorax conical, one-third wider than long and about twice as wide at the base than at the apex; sides feebly rounded from base to apex, latter not constricted, slightly emarginate; base feebly bisinuate. Surface feebly convex, densely and coarsely punctured and pubescent; pubescence condensed along the median line; anterior thoracic opening not oblique, rather deeply emarginate at its inferior margin, giving rise to the appearance of postocular lobes, which are ciliate with long, flying hairs. Elytra oblong, scarcely wider at the base than the prothorax; sides nearly straight, parallel for two-thirds their length, gradually rounded to and feebly separated at the tip, leaving the pygidium exposed; base straight; striæ and punctures deep and rather coarse on the disc, less so toward the apex; interspaces convex, especially toward the base, finely punctured; pygidium perpendicular. Legs slender; femora feebly clavate, anterior and middle bidentate; hind thighs unidentate; all the tibiæ bisinuate internally and subangulate above the middle. Tarsi slender. Long. 3.25—3.75 mm.; .13—.15 inch.

Hab.—Texas.

In form this species resembles somewhat *Trichobaris*, without, however, the denuded spots; through the emarginate prosternum and the outer joints of funicle continuous to the club, the present subgenus approaches Macrorhoptus, and through the former also Anthonomorphus.

Subgenus **Leptarthrus**.

Under this subgeneric name I have separated from Anthonomus proper two new and peculiar species from Florida, in which the antennal club becomes greatly elongated and the joints very loosely articulate; the beak is slender. Antennæ very slender, funicle 7-jointed, with the first and second joint longer than the following ones. Prosternum very short in front of coxæ; mesosternum moderately wide between the coxæ. Ventral segments subequal; first and second moderately long, former longer than the latter; segments 3 and 4 short, equal, or nearly so; fifth segment a little longer than the fourth in the male, and about equal to it in the female; pygidium exposed in both sexes; anterior legs longer and

stouter than the others. Claws armed with a short submedian tooth.

The two species are easily distinguished as follows:

Larger; anterior tibiæ not toothed internally; elytral punctures foveiform. **Julichi.**

Smaller; anterior tibiæ toothed internally; elytral punctures small. **irroratus.**

1. **A. Julichi** n. sp. Plate v, figs. 10, 10*a*, 10*b*.—Robust, subovate, reddish brown and clothed with pale yellowish pubescence, which is fine and sparse above, coarser and denser on the under surface. Beak long and slender, feebly but regularly curved; finely punctured and thinly pubescent, striate from base to the insertion of the antennæ; scrobes linear, attaining the lower segment of the eyes. Antennæ long and slender; scape long, slightly incrassate at the apex; funicle 7-jointed, first joint long and slender, second about two-thirds the length of the former, third and fourth joints subequal, longer than the following three joints. Club long, elliptic, densely pubescent; joints very loosely articulate, and of about equal length. Eyes moderately large, round, feebly convex. Head subspherical, finely, but not densely punctured, pubescent; frontal line feebly impressed. Prothorax twice as wide as long, strongly narrowed in front; base deeply bisinuate; strongly rounded on the sides, apex scarcely constricted; surface coarsely and rather closely punctured, rather densely and somewhat coarsely pubescent, pubescence condensed along the dorsal line and forming several circuate lines on the sides behind the middle. Elytra broadly oval, very convex, a little wider at the base than the prothorax, separately protuberant at base, fitting into the emargination at the base of the prothorax; humeri rounded, a little wider behind the middle with the sides strongly rounded to the apex, which is scarcely dehiscent; striæ fine, punctures very large, foveiform and remote; interspaces irregular convex, with slightly elevated, shining tubercles, which are distributed without order; scutellum somewhat hastate in form, convex and surrounded by an excavation more or less profound. Scutellum and two basal spots more densely pubescent; pubescence slightly condensed in the foveiform punctures; under surface punctured. Legs rather stout, anterior pair longer and more strongly developed than the middle and hind pair; femora strongly clavate and toothed, anterior tooth very large, broadly triangular. Tibiæ robust, strongly armed at the apex, anterior curved, dilated beyond the middle; middle and hind tibiæ shorter, straight, widened toward the apex. Tarsi stout, third joint broadly bilobed, ultimate joint moderately long and slender. Claws robust, divergent and armed with a rather short, submedian tooth. Long. 4.3—5 mm.; .17—.20 inch.

Hab.—Matacumbe Key, Fla.

A ♂ and ♀ specimen in Dr. Horn's collection, who received it from Mr. Wm. Jülich, to whom it gives me pleasure to dedicate this highly interesting addition to our insect fauna.

A. irroratus n. sp. Plate vi, figs. 11, 11*a*.—Stout oval; rufous, or rufopiceous; rather densely clothed above with very minute yellowish or fulvous scales, irrorate with patches or lines of paler and darker scales; under surface rather densely clothed with coarse, white pubescence. Beak long and slender,

slightly widened at the apex, opaque, striate from the base, punctured and thinly pubescent. Antennæ long and slender; first joint of funicle long, clavate, second joint slender and longer than the third, outer joints scarcely wider; club very elongate, loosely articulate; joints, except the last, of about equal length; the verticillate hairs are less marked than in any other species. Eyes large, round and convex. Head wide, densely scaly with a Y-shaped line of pale scales; frontal fovea linear, superficial. Prothorax almost twice as wide at the middle as long; strongly narrowed in front and constricted at the apex; base emarginate each side, regularly and strongly rounded on the sides; surface densely and coarsely punctured, each puncture bearing a squamiform hair, a narrow median line of whitish scales. Elytra suddenly and one-third wider at the base than the prothorax, and about one-half longer than wide, feebly narrowed from the base for two-thirds their length, thence rapidly rounded to the apex; strongly convex; striæ wide, impressed, punctures moderately large, transverse and closely placed, more or less concealed by the scales; interspaces strongly convex, an acute tubercle near the base of the third interspace, a feeble tuberosity on the same and another more strongly developed one on the fifth interspace and situated on the summit of the declivity; the predominant color of the scales is fulvous, variegated with spots of darker and paler scales, an anterior oblique and posterior subtransverse line of white scales; scutel and intra-humeral spot white; the first and second ventral segments are only moderately long, segments 3-5 subequal. Legs stout, thinly clothed with sparse pubescence; femora strongly clavate, infuscate about the middle, all armed with a strong, broadly triangular tooth and emarginate near the extremity; tibiæ rather slender, anterior and middle strongly bisinuate along the inner margin with a large triangular tooth about two-fifths their length from the base; posterior tibiæ feebly bi-emarginate, not toothed; tarsi slender, claws with a rather short, but robust tooth. Long. 2.5--3.2 mm.; .10—.13 inch.

Hab.—Florida (Key West; Biscayne); coll. of Dr. Horn and E. A. Schwarz.

The toothed tibiæ distinguish this species from the preceding, and in this respect agrees only with *A. elegans*, from which it is sufficiently distinguished otherwise.

A specimen in Mr. Schwarz's collection has the elytra more uniformly whitish, with a few darker spots; the alternate interspaces are a trifle more convex, and the tuberosities on the summit of the elytral declivity are obsolete. I do not consider it specifically distinct.

Subgenus Paranthonomus.

This subgenus, which has for its type *A. profundus* Lec., is readily recognized by the deep, longitudinal excavation of the pygidium.

Beak cylindrical, rather slender and punctured; scrobes commencing one-fifth (♂) or one-third (♀) from the buccal opening, straight, deep and attaining the middle of the eyes; the latter are round, convex. Head conical, punctured; front foveate; antennæ slender, inserted less than one-quarter (♂) or one-third (♀) from the apex;

scape very slender, impinging against the eye; funicle 7-jointed, first joint long, second much shorter and about twice as long as the third joint; joints 2–7 a little longer in the male than in the female; club long, elliptical, acuminate at apex, and rather loosely articulate; shining and thinly pubescent. Prothorax wider than long, narrowed anteriorly and somewhat constricted at the apex, convex; base feebly bisinuate. Elytra oblong, wider at the base than the prothorax; humeri prominent, rounded; a little wider and more strongly convex posteriorly; external margin ascending to apex, leaving the pygidium freely exposed; scutel oblong, densely pubescent. Prosternum short in front of the coxæ; mesosternum rather narrow between the coxæ. Ventral segments more unequal in the male; third and fourth shorter, fifth nearly twice as long as either the third or fourth segment, with a smooth semi-circular space at the apex. Female: segments nearly equal, third and fourth scarcely shorter than either of the preceding ones; pygidium exposed, perpendicular, with a deep, sharply defined, longitudinal excavation. Legs long and slender; femora clavate, toothed; tibiæ slender, armature strong; tarsi slender, first joint elongate, longer than the second; third deeply bilobed, spongio-pilose beneath; fourth joint long and slender; claws large, separate at the base with a long, slender tooth.

The vestiture consists of rather coarse, whitish pubescence, which, on the elytra, is intermixed with fine, blackish hairs.

The genus is represented by three species in our fauna, while in Europe it is represented by *A. pubescens*, and probably *A. pyrenæus*.

Our species may be tabulated as follows:

Thorax coarsely and less densely punctured; pubescence sparse, black hairs very scant; tooth of anterior femur without accessory cusp.

Larger, piceo-ferruginous; prothorax nearly parallel at the sides behind, and less transverse; first two joints of funicle relatively longer. **profundus.**

Smaller, rufo-ferruginous; prothorax rounded at the sides and more transverse; the first two joints of funicle relatively shorter..... **vulpinus.**

Thorax more finely and densely punctured; pubescence more conspicuous, black hairs more evident; anterior femoral tooth with an accessory cusp. **rubidus.**

A. profundus Lec.—I have but little to add to what has been stated in the generic description and synopsis of species; the first and second joints of the funicle are longer and more slender in the ♂, the second joint being more than one-half the length of the first, while it is scarcely one-half the length in the ♀; joints 3–7 are rather longer than wide in the ♂, and transverse in the ♀; outer joints of funicle and clava darker or even piceous. Head blackish; sides of prothorax almost straight for two-thirds their length from the base, then

narrowed to and feebly constricted at the tip; surface coarsely but not densely punctured with a median line of condensed pubescence; scutellum densely clothed with pale yellowish pubescence. Elytral striæ deep with elongate and rather closely placed punctures; interspaces convex, moderately wide, transversely rugulose and punctulate; pubescence fine and sparse, with very few, fine, blackish hairs intermixed; underside darker, piceous, with the pubescence more evident. Legs ferruginous; thighs armed with a strong, single tooth. Long. 3.25—3.75 mm ; .13—.15 inch.

Hab.—Illinois, Pennsylvania, Maryland, Michigan.

The apex of the fifth ventral segment in the male projects in the form of a small lobe, which fits into an emargination of the pygidium.

A. vulpinus n. sp.—Agrees with the preceding species, but is smaller, and of a reddish color; the first and second joint of the funicle are relatively shorter, the latter scarcely one-half as long as the former in the ♂ and still shorter in the ♀ ; the following joints are about equal in both sexes. Prothorax less than one-half wider than long and more rounded at the sides; the elytral interspaces less convex and more finely rugulose; the underside is scarcely darker than the rest. Long. 2.75 mm.; .11 inch.

Hab.—Pennsylvania (Hazleton).

Two males and three females were taken by myself some years ago by bush beating and considered as *S. rubidus* Lec., from which it differs by its larger size, more reddish color, coarsely punctured and finer pubescence.

A. rubidus Lec.—Oblong oval, scarcely wider behind, testaceous, rather densely clothed with yellowish pubescence. Beak punctured, with a smooth elevated line; scrobes less deep; first two joints of funicle less elongate than in the preceding species; second joint of funicle scarcely one-half as long as the first in the female; outer joints and club piceous. Eyes very convex. Prothorax scarcely one-half wider than long; sides rounded from the base and feebly constricted at the apex; surface densely and finely punctured, pubescence condensed in the median line. Elytra less than one-third wider than the prothorax, not widened behind the middle; striæ deep, punctured; black hairs more abundant than in the two preceding species. Scutellum densely clothed with pale yellowish pubescence; scutellar region dusky, suture dark, underside darker and rather densely clothed with long pubescence. Legs testaceous, thighs strongly toothed, the anterior pair with a well marked additional tooth; anterior tibiæ curved near the base and bisinuate internally. Long. 2.2—2.5 mm ; .09—.10 inch.

Hab.—District of Columbia, Maryland (Deer Park).

Readily recognized by its pale color, small size, very convex eyes, and the additional cusp of the anterior thighs. The black hairs on the elytra, although more abundant than in the two preceding species, are scarcely visible, except under a lens of considerable power.

As already pointed out by LeConte (op. cit. p. 199), this cannot be *A. helvolus* Boh. (Sch. Gen. et Sp. Curc. vol. vii, 2, p. 224), as the description "femoribus anterioribus breviter unidentatis, posticis muticis," and again, "Thorax latitudine postica nonnihil brevior," does in no wise correspond with the species under consideration.

Subgenus Anthonomus.

I have but little to add to the definition of the genus as here restricted, to what has been given in the table. The fifth ventral segment of the male is but rarely emarginate. The funicle is 6-jointed in but a small number of species.

The present subgenus contains by far the greatest number of species, which present structural differences of considerable importance, and which I have made use of in subdividing the species into the following groups:

Funicle seven-jointed.

Upper surface pubescent (scales, if any, are arranged in spots or lines, except *A. concinnus*); claws strongly toothed.

Elytra conjointly rounded at the apex; pygidium of ♂ very little exposed; pubescence dense, arranged in patterns on the elytra. **nebulosus Group.**

Elytra not conjointly rounded at the apex; pygidium, at least of the male, more fully exposed; pubescence uniform, or condensed in spots or lines without distinct patterns.

Anterior femora bidentate ..... **gularis Group.**

Anterior femora unidentate.

Third ventral segment longer than the fourth; fifth segment shorter, rarely as long as the fourth in the male.

Pubescence of elytra uniform, rarely condensed in spots or lines, and without denuded patch or fascia. Pl. vi, fig. 14... **suturalis Group.**

Elytra with spots or lines of condensed pubescence, enclosing a denuded patch or fascia. Pl. vi, fig. 15..... **signatus Group.**

Third and fourth ventral segments equal or nearly so; fifth segment of male longer than the fourth. Pl. vi, fig. 16.... **scutellatus Group.**

Upper and lower surface pubescent; claws armed with a small, inconspicuous tooth..... **juniperinus Group.**

Upper and lower surface clothed with scales; tarsi long..... **squamosus Group.**

Funicle six-jointed.

Claws armed with a large, distinct tooth..... **subfasciatus Group.**

Claws armed with a short basal tooth..... **ungularis Group.**

nebulosus Group.

I have nothing further to add to the description of this group, as given in the synopsis, except that the tooth of the claws is rather

shorter and more obtuse than in the other species with 7-jointed funicle, in this respect resembling rather *A. pyri*, *ulmi*, *ornatus*, etc., of Europe. In fact, the two species belonging here, one of which is introduced from Europe, are more characteristic of the fauna of that continent than our own.

The two species are readily distinguished as follows:

More robust, anterior thighs bidentate, pubescence more squamiform.
nebulosus Lec.

More slender, anterior femur with a large triangular tooth, pubescence piliform.
pomorum Linn.

A. nebulosus Lec.—Oval, brownish piceous; pubescence dense, rather squamiform of a grayish, brown or fawn color and intermixed with very fine, short hairs, forming distinct patterns on the elytra. Beak long, slender, moderately curved, quadristriate, lateral striæ deeper and longer, punctured and scarcely pubescent. Antennæ inserted remotely from the apex, rather long and slender; scape slender, paler than the rest; second joint of funicle slender and longer than the third; joints 3-4 slightly elongate, longer than the following joints. Eyes convex, posterior margin free. Head convex, pubescent; occiput more finely, front more coarsely and densely punctured. Prothorax more than one-half wider than long; sides more strongly rounded in front, strongly narrowed anteriorly; apex feebly constricted and impressed at the sides behind the anterior margin; surface evenly, densely and rather coarsely punctured, rather sparsely pubescent with three narrow, paler lines. Elytra one-fourth wider at the base than the prothorax, oblong, sides feebly rounded and gradually narrowed to the tip, which is conjointly rounded; striæ impressed, punctures coarse and rather closely placed; interspaces convex, punctulate; scutellum white; the pubescence is arranged as follows: a trapezoidal basal space, a double curved band commencing below the humerus and extending obliquely to the middle of the suture, thence curving outward in a transverse direction to the outer margin; within the space included is another triangular area of pubescence; underside of body and head clothed with squamiform pubescence. Abdomen less densely and more coarsely pubescent, pygidium very little (♂) or not exposed (♀). Legs moderately stout, thighs clavate, anterior bidentate, internal tooth long, outer tooth small, triangular and connected with the former at the base. Tibiæ rather shorter and stouter than usual; anterior pair curved near the base, posterior near the apex: armature strong. Tarsi slender, pubescent beneath; claws armed with a rather short tooth, which is submedian on the anterior tarsi and becomes almost basal on the posterior. Long. 3.75—4.25 mm.; .15—.17 inch.

Male.—Pygidium carinate, depressed at the sides, fifth ventral segment feebly lobed at the middle.

Female.—Pygidium convex, fifth ventral segment bilobed at the middle.

Hab.—Ohio, Michigan, Illinois, Missouri.

Varies in the ground color from pale ferruginous to almost black, and also in the patterns of pubescence. The external cusp on the

anterior thigh varies in prominence, and in one specimen before me becomes almost obsolete, being replaced by several serratures on the outer margin of the internal, or large tooth. This modification, however, could not give rise to confusion with the next species in which the anterior femoral tooth is much larger, and the external margin perpendicular. In the majority of specimens examined the pygidium is entirely concealed by the elytra.

A. pomorum Linné. Plate vi, fig. 12.—Less robust than the preceding, dark brown or piceous, pubescence fulvous brown, intermixed with pale. Beak slender, subopaque, feebly striate, a median elevated line, pubescent at the base, funicle stouter than in *nebulosus;* second joint but little longer than the third, joints 3-7 transverse. Eyes convex, posterior margin not free. Head short, conical, rather coarsely punctured and pubescent, more coarsely so and rather concave between the eyes; frontal puncture small, but deep. Prothorax about one-half wider than long, narrowed from the base, latter scarcely emarginate each side, median lobe almost obsolete; sides feebly rounded and scarcely constricted at the apex, a curved impression behind the anterior margin; surface densely punctured, pubescence coarse, hair-like, almost concealing the sculpture, brown with a median and lateral vittæ paler. Elytra oblong, one-fourth wider at the base than the prothorax; humeri rounded, sides feebly so, conjointly rounded at the apex, declivity more oblique than in *nebulosus*, transversely impressed behind the base; striæ rather wide, but superficial; punctures large and deep, and like the striæ more or less concealed by the pubescence, latter dense and less coarse than in the preceding species; a subdenuded spot near the base of the third interspace; an oblique fascia behind the middle, extending from the seventh to the first interspace; a triangular spot on the declivity, with its base on the first interspace; scutellum, a few small spots on the disc and along the margin of the oblique fascia, white. Beneath, thorax rather coarsely, abdomen more finely punctured and thinly pubescent, except the prothorax. Legs more slender, femora feebly clavate, unidentate, anterior femoral tooth very large, acutely triangular, external margin perpendicular; tibiæ and tarsi as in *nebulosus*. Long. 4 mm.; .16 inch.

Hab.—Ohio.

A female specimen of this common European species was received some years ago among specimens of *nebulosus*, to which it bears a superficial resemblance. The less robust form and large, single tooth of the anterior thighs, will readily distinguish the present species. It is with some hesitancy that I introduce this species as occurring in our fauna, based, as it is, on a unique specimen.

gularis Group.

The species belonging to this group have the anterior thighs bidentate, the pygidium rather freely exposed, and the pubescence coarse or sparse, without any attempt at forming distinct patterns.

The second joint of funicle is longer than the third. Legs and tarsi slender (except *grandis*), claws armed with a long, slender tooth. The ventral segments not very unequal, the fifth generally longer than either the third or fourth.

They may be tabulated as follows:

Larger, pubescence coarse, antennæ inserted more remotely from the apex. **grandis.**

Smaller, pubescence fine and sparse above, antennæ inserted less remotely from the apex.

Beak long and slender, shining.

Pitchy black, anterior tibiæ of male not curved inward and produced at the tip..... **gularis.**

Elytra and legs more or less ferruginous; anterior tibiæ of male curved inward and produced at the tip..... **virgo.**

Beak shorter and stouter, opaque..... **rufipennis.**

A. grandis Boh.—Stout, subovate, rufo-piceous and clothed with coarse, pale yellowish pubescence. Beak long, slender, shining, and sparsely pubescent at the base; striate from base to the middle, striæ rather coarsely punctured; apical half finely and remotely punctured. Antennæ slender, second joint of funicle longer than the third; joints 3-7 equal in length, but becoming gradually wider. Head conical, pubescent, coarsely but remotely punctured, front foveate. Eyes moderately convex, posterior margin not free. Prothorax one-half wider than long; base feebly bisinuate, posterior angles rectangular; sides almost straight from base to middle, strongly rounded in front; apex constricted and transversely impressed behind the anterior margin; surface moderately convex, densely and subconfluently punctured; punctures irregular in size, coarser about the sides; pubescence more dense along the median line and on the sides. Elytra oblong, scarcely wider at the base than the prothorax; sides subparallel for two-thirds their length, thence gradually narrowed to and separately rounded at the apex, leaving the pygidium moderately exposed; striæ deep, punctures large and approximate; interstices convex, rugulose, pubescence somewhat condensed in spots. Legs rather stout, femora clavate, anterior strongly bidentate, inner tooth long and strong, outer one acutely triangular and connected with the former at the base; middle and posterior thighs unidentate. Tibiæ moderately stout, anterior bisinuate internally, posterior straight; tarsi moderate; claws broad, blackish, and rather widely separate; tooth almost as long as the claw. Long. 5—5.5 mm.; .20—.22 inch.

Hab.—Mexico, Texas.

Whether the introduction of this species into our faunal limits is permanent or not, future observations must decide. Three specimens are before me, two in the collection of Dr. Horn,* labeled Mexico, and a specimen in Mr. Schwarz's collection from Texas. They tally well with the description given by Bohemann, though the descriptive expression in reference to the elytra—"thorace plus triplo longiore"

* Sent me with the information that they injured the cotton plant (G. H. H.).

—is not correct. It is easily recognized by its size and the characters as given in the table. The third and fourth ventral segments are shorter than in the other members of this group.

A. gularis Lec.—Oblong-elliptic, pitchy black, shining, finely and sparsely clothed above with whitish pubescence. Beak shining, finely punctured; three feebly elevated lines extending from the base to about the insertion of the antennæ, the median line extending upon the front; scrobes deep, straight. Antennæ slender, second joint of funicle longer than the third; scape and first joint of funicle bright rufous, succeeding joints fuscous, verticels consisting of about 7–8 long, flexible hairs. Head short, conical; frontal puncture very small or obsolete; occiput very finely and remotely punctured, front finely rugose. Eyes moderately convex, posterior margin free. Prothorax scarcely wider than long; sides nearly straight behind, strongly rounded and narrowed anteriorly, not constricted at apex; posterior angles not rounded and base not bisinuate; surface densely and rather coarsely punctured on the sides, less so on the disc; pubescence somewhat condensed near the posterior angles and along the median line. Elytra oblong, a little wider at the base than the prothorax, feebly rounded on the sides and separately rounded at tip, almost twice as long as wide; striæ finely impressed, punctures small, elongate, and not closely approximate on the disc, a little coarser and more closely placed on the sides; interspaces wide, flat finely punctulate; scutellum densely clothed with yellowish pubescence; underside of head, thorax, and sides of abdomen, densely clothed with pale, yellowish squamiform pubescence. Abdomen along the middle finely and sparsely pubescent and rather closely punctured; pygidium exposed, perpendicular and coarsely punctured. Legs long and slender, rufo-piceous; base of thighs, distal half of tibiæ and joints 1–3 of tarsi paler; anterior thighs with a large, elongate-triangular tooth, externally to which there is a small triangular cusp; median and posterior femora armed with a strong single tooth. Long. 3—3.5 mm.: .12—.14 inch.

Hab.—Virginia, West Virginia, Maryland, Michigan.

Each elytron has a fuscous reflection along its disc. This species could only be confounded with the following, from which it is distinguished by the characters given in the table.

A. virgo n. sp. Plate vi, fig. 13.—Resembles *gularis* in form and pubescence. It differs as follows: Beak more densely punctured, less shining; median elevated line, scarcely attaining the base. Head opaque, densely and finely punctured, front with an impressed line. Prothorax rufo-piceous. Elytra bright ferruginous, periscutellar space and along the suture dark piceous; anterior tibiæ fringed with hair along the inner margin; anterior tibiæ of male curved inward near the apex, and the internal angle produced in form of a broad hook. Legs and abdomen along the middle ferruginous. Long. 2.5—3.4 mm.; .10—.15 inch.

Hab.—Cobb's Island, Va. Coll. E. A. Schwarz.

Two males and one female. The female has the anterior tibiæ simple; neither curved nor produced at the apex; one male is much smaller, and has the elytra entirely piceous and the legs partly so.

A. rufipennis Lec.—Of the same general habitus as *gularis*, but smaller, and the pubescence a little more pronounced. It differs in the following characters: Piceous, elytra ferruginous. Beak shorter and stouter, opaque; striolate with several rows of remote punctures, lateral elevated line more prominent, median not extending upon the front. Antennæ pale rufous, club dusky, second joint of funicle elongate. Eyes convex, but not free behind. Prothorax scarcely one-half wider than long. Elytra semi-opaque, striæ and punctures more strongly impressed; interspaces slightly convex, finely rugose, each with several irregular rows of punctures; scutellar space and along the suture darker; the pubescence on the under surface is white and as dense as in *gularis*; the legs are a trifle stouter. Long. 2.2–3 mm.; .09—.12 inch.

This species varies somewhat in size and coloration, some specimens are entirely rufous; the pubescence, also, is more pronounced in some than in others.

LeConte's description: "thorax a little longer than wide," does not correspond with any specimens before me, nor does the statement in his synoptic table of species—that the anterior thighs are unidentate. The smaller, outer cusp is well marked in all but a single specimen, in which it is nearly obsolete.

Hab.—Pennsylvania (LeConte), Illinois, Texas, Florida.

suturalis Group.

The species belonging to this group have the anterior thighs unidentate. The ventral segments decreasing in length from the second, the third segment being always longer than the fourth, and this longer than the fifth, at least in the male, except *corvulus*, where the fifth is scarcely shorter than the fourth segment. In general, the species are rather sparsely pubescent, except *subguttatus*, all the femora armed with a single tooth (hind pair mutic in *melancholicus*), although the tooth of the posterior pair becomes nearly obsolete in specimens of *subguttatus* and *morulus*. The tarsi are more slender than in the next group, and the first joint longer than the second; the elytra are without a denuded fascia; lines and spots of pubescence do not occur, except in *subguttatus*, more rarely in *flavicornis*.

The species are closely related, and while it is not difficult to recognize typical specimens, aberrant forms occur whose exact position it may not be always easy to determine.

I have arranged the species as follows:

Entirely rufo-testaceous or ferruginous, underside of thorax generally darker.
Elytra finely striate, punctures small, interstices flat, wide; antennæ slender.
Elytral interspaces rugose, prothorax not constricted at apex; larger species. **Bolteri.**
Elytral interspaces smooth, prothorax strongly constricted behind the anterior margin..... **rubellus.**

tra coarsely striato-punctate, punctures nearly or quite as wide as the interspaces, which are convex; antennæ stouter ..... **confusus.**

Dark piceous or black; elytra wholly, or in part, ferruginous; antennæ testaceous.

Elytra and abdomen ferruginous, former subopaque..... **sycophanta.**

Elytra partly black, more shining..... **suturalis.**

Black; elytra brownish, prothorax coarsely punctured..... **brunnipennis.**

Entirely pitchy brown or black.

Pubescence fine, inconspicuous above.

Elytra finely striato-punctate, shining; antennæ testaceous.

Prothorax conical, strongly narrowed from base to apex, sides feebly rounded; surface finely and densely punctured... **melancholicus.**

Prothorax transverse, sides strongly rounded, coarsely but not densely punctured ..... **flavicornis.**

Elytra finely striate, punctures moderate; interspaces flat, rugose and without lustre ..... **morulus.**

Elytral striæ deeply impressed; punctures large, distant; interspaces convex, shining..... **corvulus.**

Pubescence coarse, conspicuous, forming spots or lines on the elytra. **subguttatus.**

A Bolteri n. sp.—Oblong, ferruginous, thinly clothed with fine, whitish pubescence. Beak slender, curved, subopaque, finely pubescent and punctured, substriate at the base with a finely elevated, smooth median line. Antennæ slender, second joint of funicle elongate, longer than the third; joints 3–7 nearly equal, outer joints scarcely wider, club piceous. Head convex, punctured; punctures large, remote and superficial; frontal puncture small. Eyes convex, posterior margin somewhat free. Prothorax more than one-half wider than long; sides feebly rounded from base to apex, latter scarcely constricted and about two-thirds as wide as the base, which is only feebly bisinuate; surface densely and rather finely punctured. Elytra oblong, about one-third wider at the base than the prothorax, somewhat shining; sides parallel for two-thirds their length, rather suddenly narrowed to and separately rounded at the apex; striæ finely impressed; punctures small, approximate, a trifle larger toward the base; interspaces flat finely rugulose, a small, subhumeral tubercle on the ninth interspace, visible from above; scutel densely pubescent, under surface with a few remote punctures; meso- and metathorax darker, and especially on the sides densely clothed with squamiform pubescence. Abdomen sparsely pubescent. Legs slender, femora moderately clavate, all armed with an acute tooth. Tibiæ feebly bisinuate internally; tarsi slender. Long. 3—3.2 mm.; .12—.13 inch.

Hab.—New Mexico.

Three specimens in Mr. Bolter's collection, to whom it gives me pleasure to dedicate this addition to our fauna.

A. rubellus n. sp.—Of the same color and similar in form to the preceding species, but smaller and a trifle stouter. Beak slender, curved and finely punctured; median and a feebly elevated line each side extending from the base to about the middle of the beak. Antennæ a little more robust, second joint of funicle scarcely longer than the third; joints 3-7 not longer than wide, each with a verticil of about six rather stiff bristles. Head dusky, very convex;

glabrous with a few small, remote punctures, finely and concentrically rugulose; frontal puncture distinct. Eyes slightly convex, posterior margin moderately free. Prothorax one-third wider than long, base bisinuate; sides nearly straight and parallel from base to about the middle, rounded before the middle and strongly constricted behind the anterior margin, about three-fourths as wide at the apex as at the base; surface densely and coarsely punctured, sparsely pubescent. Elytra subovate, almost one-third wider at the base than the prothorax, slightly widened posteriorly; sides broadly rounded to the apex, which is scarcely dehiscent and covers the pygidium almost completely; striæ moderately fine, becoming deeper and wider toward the base and sides; punctures moderately large, round, and not closely approximate; interspaces feebly convex, smooth and scarcely pubescent; underside with a few remote punctures, otherwise as in *Bolteri*, but the pubescence is less marked, and the pygidium almost completely concealed by the elytra. Legs and tarsi as in that species. Long. 2.2 mm.; .09 inch.

Hab.—Lake Superior.

A unique female in my collection. It might be confounded with the preceding species, its nearest ally, but differs especially in size and form of prothorax. From *confusus* it is distinguished by the much less pronounced elytral sculpture and the interspaces being smooth.

A. confusus n. sp.—Similar in form to *A. Bolteri;* rufo-testaceous, pubescence coarser and more conspicuous. Beak a little stouter and less curved; median elevated line very feeble, or almost obsolete; more densely and coarsely punctured. Antennæ stouter, second joint of funicle less elongate, but always longer than the third. Eyes scarcely convex, posterior margin not free. Head a trifle more coarsely punctured. Prothorax constricted at the apex, bisinuate at the base. Elytra coarsely striato-punctate, punctures large and round, almost or quite as wide as the interspaces near the base; pubescence coarser and longer; underside, legs and tarsi as in *Bolteri*. Long. 2.3—3 mm.; .09—.12 inch.

Hab.—California, Montana, Wyoming.

The three preceding species are very closely related, but more extensive series are necessary, to prove them as mere variations of one species. Two specimens in Dr. Horn's collection, from Montana, which I refer to the present species, show a decided similarity to *Bolteri* in the less coarsely punctured, elytral striæ, more convex eyes, less conspicuous pubescence and larger size.

A. sycophanta Walsh.—Stouter than the preceding, dark piceous, elytra and abdomen ferruginous, thinly pubescent. Beak not very slender, curved, coarsely punctato-striolate; median elevated line well marked, a lateral one less so. Antennæ stout, testaceous; second joint of funicle longer than the third. Head convex, punctured, frontal puncture deep. Eyes feebly convex, scarcely free posteriorly. Prothorax transverse, two-thirds wider than long, base scarcely bi-emarginate; sides rounded behind the middle, narrowed anteriorly and constricted at the apex; surface densely and coarsely punctured. Elytra more than

one-fourth wider at the base than the prothorax; subparallel for two-thirds their length and separately rounded at the apex, deeply and coarsely striato-punctate, especially so toward the base; interspaces somewhat convex, rugulose; under surface more coarsely pubescent, pubescence less squamiform, pygidium exposed. Legs and tarsi moderately slender, thighs feebly clavate, claws rather small. Long. 2.5—3 mm., .10—.12 inch.

Hab.—Pennsylvania, Illinois, Wisconsin, Massachusetts, New Hampshire, Michigan, Oregon, Colorado, S. California, District of Columbia.

Occurs probably in all the Atlantic, Middle and Western States. Varies somewhat in coloration, but the elytra and the abdomen are always ferruginous. The anterior thoracic margin is generally reddish. The legs are either bright ferruginous, or else pitchy black, without having observed any intermediate variations. One specimen in Dr. Horn's collection from South California has the elytral striæ rather superficial and the punctures smaller. I have no doubt of the identity of this species with *A. hæmatopus* Boh.

A. suturalis Lec.—Similar in size and form to *sycophanta*, but a trifle less robust, pitchy black, elytra more or less ferruginous, tibiæ rufo piceous, tarsi paler, the beak is opaque, feebly striate and punctured. Antennæ, head and eyes, as in that species. Prothorax transverse, more strongly rounded on the sides behind, narrowed in front, constricted and transversely impressed behind the anterior margin; surface more densely and finely punctured, base bisinuate. Elytral striæ not strongly impressed; punctures small, not very close; interstices flat, more shining and very finely rugose; scutellum clothed with white pubescence; under surface as in that species, but the pubescence is a little more dense and squamiform; the tibiæ are a little stouter, the tarsi longer, and the claws larger; the tooth of the latter is also a little larger. Long. 2.7—3 mm.; .11—.12 inch.

Hab.—Eastern and Western States.

The red apical blotch varies greatly in extent, leaving always, however, the suture and scutellar space black. Larger sized specimens with the elytra almost entirely red, may be confounded with *A. virgo*, from which the present species differs by its unidentate anterior femora, more strongly clavate thighs and smooth rostral carina. From *sycophanta* it is to be distinguished, aside from coloration, by the sides of the prothorax being more strongly rounded and the apical constriction, the punctures also, are less coarse and less dense, and the elytra more shining.

A specimen in Dr. Horn's collection from Iowa, while evidently belonging to the present species, has the prothorax quite coarsely, though very closely, punctured. The elytra are entirely ferruginous, with a triangular basal space dusky.

A. brunnipennis Mann.—An oblong species, resembling the preceding in form and size, with the beak punctured and striate, the head punctured, frontal line long; the prothorax is a little longer than wide, very coarsely and densely punctured; the elytral striæ punctured, distant, not much impressed; interspaces flat, smooth; the antennæ are testaceous, with piceous club; second joint of funicle equal to third and fourth united. Legs slender, thighs very feebly clavate, armed with a very small, acute tooth, almost obsolete on the hind pair; tibiæ nearly straight. Body thinly pubescent, with some intermixed scales towards the sides and on the under surface.

Hab.—Geysers, Cal. Mr. Crotch.

I have not seen this species in nature, and therefore can only repeat here the description as given by LeConte.

A. melancholicus n. sp.—Elongate-oval, black, with scarcely any lustre, and clothed with a fine, squamiform pubescence, which is sparse above and more dense on the under surface. Beak rather stout, coarsely punctured, opaque; median carina almost reaching to the apex; scrobes scarcely attaining the eye. Antennæ rufo-testaceous, not very slender; second joint of funicle longer than the third, joints 3-8 transversely rounded; clava elongate, dusky. Eyes convex, more widely separated above than usual. Head convex, rather coarsely punctured, with a well marked frontal fovea, and, like the beak, glabrous, except a few scattered scales. Prothorax conical, a little wider at the base than long, strongly narrowed anteriorly, with the sides very feebly rounded and scarcely constricted at the apex; surface convex, finely, densely and equally punctured, and sparsely covered with scale-like pubescence, each hair arising from a puncture; base feebly bisinuate. Elytra elongate, rather suddenly and about one-fourth wider than the base of the prothorax; sides almost straight, gradually narrowed to apex, which is but slightly dehiscent; striæ fine, feebly impressed; punctures small, elongate and rather remote; interspaces flat, or nearly so, and having some lustre, remotely punctulate, sparsely pubescent; underside: pectus rather densely, abdomen more sparsely punctured, rather densely clothed with pale scales. Legs slender, thighs feebly clavate, anterior and middle with a small sharp tooth, posterior mutic; tibiæ slender, rufo-piceous, anterior and middle straight, posterior feebly bisinuate and dilated internally at the tip; tarsi slender, paler than the tibiæ. Long. 3.2 mm.; .13 inch.

Hab.—Victoria, Vancouver.

Two males and one female, collected by my friend, F. H. Wickham, at the above locality. The female has the beak more shining and slender, the hind tibiæ less bisinuate and scarcely produced at tip. On account of the squamiform pubescence, which is readily removed, this species might be referred to the *squamosus* group, with which, however, it has not the least affinity. Abraded specimens resemble more *nigrinus*, from which it differs by the finely punctured prothorax and shorter fifth ventral segment.

A. flavicornis Boh.—Plate vi, fig. 14.—Oval, more robust than *suturalis*; black, pubescence sparse and moderately coarse above, more dense and squami-

form beneath. Beak not very slender, opaque, striolate, punctured. Antennæ testaceous, stout; second joint of funicle elongate, club dusky. Eyes more convex and moderately free behind. Head convex, finely and remotely punctured, concentrically rugulose, frontal puncture deep. Prothorax transverse, nearly twice as wide as long, bisinuate at the base and moderately constricted at the apex, transversely impressed in front; sides broadly rounded; surface rather coarsely, but not very densely punctured. Elytra about one-fourth wider at the base than the prothorax and about one-half longer than wide; humeri rounded, sides nearly straight, separately rounded at apex; striæ fine on the disc, becoming wider and more deeply impressed on the sides; punctures small, slightly elongate and remote, larger and more closely approximate on the sides; interspaces shining, plane on the disc, more convex towards the sides and apex, finely rugose, scutel and intra-humeral spot densely white pubescent; underside remotely punctured. Legs stouter than in *suturalis;* thighs more strongly clavate, anterior and middle tibiæ bisinuate internally, posterior straight; tarsi slender, rufo-piceous. Long. 3 mm.; .12 inch.

Hab.—Southern States (Patin?).

A specimen in my collection, taken in this neighborhood (Hazleton, Pa.), measures scarcely 2.5 mm., but does not differ otherwise. Two specimens from Texas in Mr. Ulke's collection are a little less robust, with two interrupted lines of condensed pubescence on the elytra, thereby forming some similarity to *subguttatus*. From *nigrinus*, with which the present species might be confounded, it is to be distinguished by the less coarsely and less densely punctured prothorax, testaceous antennæ and less slender legs.

A. morulus Lec.—Black, or piceous, robust and convex; pubescence fine, sparse, a trifle more dense on the under surface. Beak moderately slender, punctured, shining towards the apex, median carinate line distinct, feebly striate from the base. Antennæ rather robust, rufo-piceous; scape and first joint of funicle rufous, second joint of funicle longer than the third, joints 3-7 transverse, outer joints wider. Eyes feebly convex and scarcely free behind. Head globose, occiput scarcely, front more distinctly punctured; frontal puncture rather large; a transverse, impressed line on a level with the superior margin of the eyes. Prothorax scarcely one-half wider than long, moderately narrowed anteriorly, scarcely constricted at the apex; sides almost straight behind, feebly rounded before the middle, base not bisinuate; surface coarsely and rather densely punctured. Elytra about one-third and rather suddenly wider at base than the prothorax and less than one-half longer than wide; the sides, seen from above, appear slightly emarginate behind the humerus, due to a feeble bulging outward of the ninth and tenth interspaces, rather suddenly narrowed to the apex, which is separately rounded and widely dehiscent, leaving the pygidium freely exposed; striæ fine, punctures moderately large and approximate; interspaces flat, subopaque and rather strongly rugose; under surface punctulate. Legs not very slender, thighs moderately clavate, all armed with a small, acute tooth; tibiæ slightly widened toward the apex, anterior and middle scarcely biemarginate, posterior straight; tarsi moderately slender, tooth of claw long and slender. Long. 2.6—2.8 mm.; .10—.11 inch.

Hab.—California.

Only two female specimens in Dr. Horn's collection are before me. Bears a striking resemblance to *Epimechus mimicus*, described further on, from which, indeed, it cannot be distinguished, except by the toothed claws.

Since writing the above I have received a specimen from Dr. Horn, which has entirely the coloration of a typical *A. suturalis*, the elytra being bright rufous with the exception of a triangular basal space; it is easily recognized, however, by the form of the prothorax and the less shining elytra.

A. corvulus Lec.--Rather robust, oval, black shining; pubescence rather long and coarse, but sparse and easily removed. Beak moderately slender, punctured with well-marked median carina; scrobes curved, somewhat approximate beneath and directed against the lower angles of the eyes. Antennæ stout, rufopiceous; scape paler, second joint of funicle scarcely longer than the third, following joints gradually wider, verticels consisting of stiff, bristle-like hairs. Eyes feebly convex and slightly free behind. Head convex, occiput impunctured, front with a few punctures and a well-marked fovea. Prothorax transverse, more than one-half wider than long, strongly rounded on the sides and gradually narrowed to apex, which is feebly constricted; base scarcely bisinuate, surface coarsely, but not densely punctured. Elytra about one-fourth wider at the base than the prothorax; humeri rounded; sides a little widened to behind the middle, separately rounded at tip, leaving the pygidium freely exposed; striæ deeply impressed, wide; punctures large, not closely approximate; interspaces convex, smooth, with small, remote punctures; scutellum white pubescent; underside remotely punctured, pubescence more dense. Legs slender, thighs feebly clavate, all armed with a small, acute tooth; tibiæ almost straight, and at the apex, like the tarsi, brownish. Long. 1.5—2.2 mm.; .06—.09 inch.

Hab.—Pennsylvania, Massachusetts, District of Columbia, Illinois, Wisconsin, Michigan, Texas, Arizona.

Easily recognized by its small size, shining black color, coarsely punctured prothorax and sparse pubescence. The pubescence is easily rubbed off, giving the insect a still more shining appearance, and on superficial examination, might give rise to confusion. Specimens are before me of a brown color, probably due to their being immature.

A. subguttatus n. sp.—Elongate-oval, piceous, more slender, but otherwise closely allied to *flavicornis*, from which it differs in the following characters: Pubescence coarse, dense and white. Beak more slender and shining, finely and less closely punctured; median carina more distinct, shining, and extending to the frontal puncture. Head not concentrically rugulose, second joint of funicle scarcely longer than the third. Prothorax less rounded on the sides, which are almost straight behind with the hind angles rectangular; apex not constricted, punctures smaller and remote on the disc, crowded on the sides; a

median vitta, wider at the base of condensed pubescence. Elytral stri
ally more deeply impressed, two interrupted lines of condensed pubesc
tending from the sides to the second interspace, where they unite; t
enclosed between these lines is not denuded, densely clothed on the u
with white pubescence; pygidium freely exposed. Legs slender, rufo
thighs feebly clavate, tooth small, posterior almost obsolete; anterior an
tibiæ scarcely bisinuate internally. Long. 2.7 mm.; .11 inch.

Hab.—Florida, District of Columbia.

A specimen in Mr. Ulke's collection, from District of Co
differs from the typical form by the pubescence being pale ye
sparser and less coarse.

This species might possibly be referred to the *signatus* grou
which, however, it has no close relationship; the first and
ventral segments are relatively shorter, and there is no d
elytral fascia. Dr. LeConte indicated this species under *A.*
tus Gyll. (Proc. Amer. Phil. Soc. vol. xv, p. 199), but failed
scribe it.

signatus Group.

This group contains species of rather small size, and prese
similarity of habitus which makes them easy of recognition.
agree with those of the preceding group in the abdominal for
the first and second ventral segments, however, are generally
and nearly equal in length, the gradual decrease in length c
cing with the third segment, instead of the second, as in that
The elytra have a post-median denuded patch or fascia, surr
in the fresh state at least, by spots or lines of pubescence.
differ very little in sculpture, and are to be distinguished rath
general assemblage of characters and habitus. The first tw
joints are equal, or nearly so.

The following table, supplemented by the specific descripti
enable the student to identify his species:

Elytral interspaces equal, or nearly so.
Front foveate.
Larger and more robust, second joint of funicle distinctly longer t
third; prothorax strongly rounded on the sides.
Frontal fovea small, punctiform; pubescence fine, inconspicuous.
Elytra reddish, scutellar space and fascia darker, latter interr
the third interspace; beak less curved and more opaque.
sig
Elytra pitchy black, unicolorous; fascia not interrupted; beak
and more shining, ...**consi**
Frontal fovea large, elongate; pubescence coarse, conspicuous.
vesper

Smaller and less robust; second joint of funicle scarcely longer than the third; prothorax not strongly rounded on the sides.

Clothed above with pubescence only, pitchy black, elytra reddish brown, suture darker..... **musculus.**

Thinly clothed with broadly oval scales, intermixed with fine pubescence, yellowish brown, each elytron with two black spots..**concinnus.**

Front sulcate.

Pitchy-black, thighs feebly clavate, posterior toothed .. ..**sulcifrons.**

Reddish brown, thighs strongly clavate, posterior not toothed.

sexguttatus.

Elytral interspaces alternately wider ..... **interstitialis.**

A. signatus Say. Plate vi, fig. 15.—Robust, oval, piceous; elytra red, denuded fascia and scutellar space darker, thinly clothed with whitish pubescence. Beak moderately slender, feebly curved, subopaque and rather densely striato-punctate; median carina smooth, distinct. Antennæ testaceous, club darker, funicle rather stout, outer joints distinctly wider, second joint distinctly longer than the third, but not slender; joints 3-7 transversely rounded. Eyes moderately convex, free behind. Head convex, occiput somewhat shining, front with a few remote punctures, finely and indistinctly rugulose, frontal puncture distinct. Prothorax wider than long, moderately narrowed in front; sides not strongly rounded, feebly constricted at the apex and transversely impressed behind the anterior margin; surface rather coarsely and densely punctured, pubescence condensed along the median line. Elytra less than one-fourth wider at the base than the prothorax and about one-half longer than wide, a little widened to behind the middle; sides feebly rounded; striæ impressed, punctures moderately large, close set and becoming smaller towards the lateral margin; interspaces slightly convex, shining with an irregular row of fine punctures; the denuded fascia extends from the side to the third interspace, another denuded spot on the second interspace; scutellar space and along the suture darker; scutellum and intra-humeral spot densely pubescent. Thorax underneath more densely clothed with white, squamiform pubescence. Abdomen sparsely pubescent, segments transversely strigose, first and second segments rather long. Legs slender, femora feebly clavate, piceous, all armed with a sharp, well-marked tooth; tibiæ paler, anterior feebly bisinuate, middle and posterior nearly straight; tarsi pale, first joint elongate. Long. 2—2.9 mm.; .08—.12 inch.

Hab.—Atlantic slope.

Varies considerably in size, and still more so in coloration, from pale testaceous to almost pitchy-black; the latter variation might readily be mistaken for the next species, from which it differs by the less rounded prothorax and stouter antennal funicle; the beak also is more densely punctured and less curved. The following variety is well marked, and deserves special consideration:

Var. **pallidus.**—Testaceous; head dark piceous; rostrum and pectus infuscate. Prothorax nearly twice as wide as long; the scutellar space is scarcely darker. I would consider this to be *bisignatus* Gyll., but the expression—"thorax latitudine baseos paulo

brevior," does not apply to the form under consideration, and probably refers to a pale variety having the typical form of thorax.

Occurs in Louisiana, Georgia, Florida, Maryland.

A. consimilis n. sp.—Agrees with *signatus* in size and general habitus, but differs in the following characters: Color uniformly pitchy brown or black. Beak distinctly curved, less densely punctured and a little more slender; funicle of antennæ less robust, outer joints scarcely wider; second joint more elongate and slender. Head opaque, rugulose. Prothorax, with the sides, more strongly rounded, and more strongly narrowed anteriorly; denuded fascia always reaching to the first interspace; tibiæ, especially middle and posterior, more widened toward the apex. Long. 2.5—2.8 mm.; .10—.11 inch.

Might be confounded with *musculus*, but is stouter, and the second joint of funicle is elongate and slender.

Hab.—District of Columbia. Dr. Horn's and Mr. Ulke's coll.

A. vespertinus n. sp.—Subovate, brown; pubescence rather coarse, white and conspicuous. Beak feebly curved, not very slender, densely punctured and somewhat shining; median elevated line almost obsolete, feebly striate at base. Antennæ rather stout, scape and first joint of funicle paler; second joint elongate, outer joints but litttle wider. Eyes flattened, scarcely free behind. Head short, convex, remotely punctured, each puncture bearing a whitish hair, front sulcate. Prothorax wider than long, moderately narrowed anteriorly; sides rounded from the base, scarcely constricted at the apex; coarsely but not very closely punctured, base bisinuate. Elytra more than one-fourth wider at base than the prothorax; sides feebly rounded; striæ deeply impressed, punctures coarse, closely approximate; interspaces convex, finely rugose and each with several irregular rows of piliferous punctures; surface rather dull, without lustre; the fascia extends from the side to the third or second interspace; side pieces of thorax densely clothed with white scales. Abdomen more thinly pubescent, the fifth ventral segment is not shorter than the fourth, pygidium freely exposed, densely punctured. Legs not very slender, thighs moderately clavate, armed with an acute tooth. Long. 2.3—2.5 mm.; .09—.10 inch.

Hab.—C. Ill. (Hamilton), Fla., Ga., Texas (Dr. Horn).

Differs from *signatus* by its coarse pubescence, larger, elongate frontal fovea and uniform brown color; the elytral fascia is wider, extending farther anteriorly, and is not interrupted.

Dr. Hamilton's specimen has the prothorax more finely and densely punctured, and the posterior thighs not toothed. It may possibly be distinct, but as it agrees otherwise, I do not feel justified in establishing a new species on a single specimen.

A. musculus Say.—Elongate-oval, rufo-piceous, thinly clothed with white pubescence. Beak rather slender, feebly curved, subopaque, punctured; median elevated line distinct. Antennæ stout, rufo-testaceous, club darker; second joint of funicle scarcely longer than the third, outer joints wider. Head scarcely convex, not punctured, frontal puncture small. Eyes convex, posterior margin

free. Prothorax about one-half wider than long, gradually narrowed anteriorly, base feebly bisinuate; sides broadly rounded from base to apex, latter feebly constricted, transversely impressed in front; surface densely and rather coarsely punctured. Elytra about one-third wider at base than the prothorax; sides feebly rounded, gradually narrowed to and separately rounded at the apex, leaving the pygidium freely exposed, latter punctured; rufous, sutural interspace darker; striæ well impressed, punctures large and rather closely approximate; interspaces slightly convex, smooth, shining with a few small, scattered punctures; underside with a few scattered punctures, sparsely pubescent. Legs not very slender, dark ferruginous, thighs feebly clavate, armed with an acute tooth; tarsi moderately slender. Long 1.8—2 mm.; .07—.08 inch.

Hab.—Southern, Middle and Western States.

Varies in coloration; fresh specimens have the elytra more bright red, which in dried specimens changes to a dark brown or even blackish color. The denuded spot can generally be recognized by its darker color, and being surrounded by a line of pubescence, which is liable, however, to abrasion. Why Prof. Riley should consider this species identical with *signatus* (Agric. Report 1885, pp. 276–282) I cannot understand, for, aside from the difference in length of the second joint of funicle which is always evident in fresh and can be demonstrated on old specimens that have been relaxed, the present species is less robust, thorax less rounded on the sides, and suture always darker. According to Dr. John Hamilton it is rarely found after the first week in June, whereas *signatus* is found always during the whole of Summer on various plants and shrubs, while the former is generally taken on Huckleberry.

A. concinnus n. sp.—Oval, reddish brown, thinly clothed with small, white, broadly ovate scales, intermixed with fine pubescence. Beak not very slender, slightly widened at apex, feebly curved, indistinctly striate, very finely punctured and pubescent. Antennæ slender, first joint of funicle not very stout, second and third slightly elongate, former scarcely longer than the latter, outer joints slightly wider. Eyes moderately prominent, posterior margin free. Head finely, but not closely punctured, thinly clothed with scales and pubescence, frontal fovea rounded, marked. Prothorax more than one-half wider than long, strongly narrowed in front, broadly but not strongly constricted at the apex and transversely impressed about one-third behind the apical margin; sides not strongly rounded, hind angles obscurely rounded; surface very closely and rather coarsely punctured, each puncture bearing a short scale-like hair, scales somewhat condensed on the sides and along the median line. Elytra oval, about one-fourth wider at the base than the prothorax, not wider behind the middle, sides regularly rounded, striæ well impressed, punctures large, approximate; interspaces convex, slightly roughened, each with a row of fine punctures bearing a fine recurved hair, space behind the scutellum dusky, latter small, round; a large, blackish, semi-circular spot behind the middle, with the concavity outward and extending from the third interspace, deprived of scales;

another smaller spot on the confluence of the fourth, fifth and sixth interspaces: these spots are surrounded by interrupted lines of condensed scales; another spot of condensed scales at the base of the sixth interspace, rest of surface non thinly scaly; underside evidently punctured, thinly clothed with scales. Legs moderately slender, femora clavate, infuscate, all armed with a sharp and rather large tooth, more conspicuous on the anterior pair; tibiæ nearly straight, slightly widened toward the apex; tarsi not very slender; claws armed with an acute tooth. Long. 1.8—2.2 mm.; .07—.09 inch.

Hab.—N. Smyrna, Fla.

Two specimens in Mr. Schwarz's collection. A very distinct species, readily recognized by its vestiture consisting of scales intermixed with fine pubescence and the double elytral spots, the anterior of which is semi-annular in shape; superficially, it very much resembles light colored specimens of *signatus*, but is smaller. The first ventral segment is rather shorter than usual in this group, and fifth segment of the male does not appear to be shorter than the fourth.

A. sulcifrons Lec.—Subovate, dark piceous, shining, thinly clothed with white pubescence. Beak not slender, shorter than head and thorax, feebly curved, subopaque, punctured, median line feeble. Antennæ rather slender, rufo-piceous, scape and first joint of funicle rufo-testaceous; second joint of funicle about twice as long as the third, outer joints scarcely wider. Head feebly convex, opaque, impunctured; front with long, feebly impressed line. Eyes convex, posterior margin free. Prothorax wider than long, moderately narrowed anteriorly and distinctly constricted at the apex, regularly rounded on the sides; surface not very closely punctured, punctures rather small, the intervening ridges and spaces rugulose; pubescence somewhat condensed along the basal half of the median line. Elytra about one-fourth wider at the base than the prothorax, a little wider behind the middle; striæ moderately impressed, punctures large, especially toward the base and sides, approximate; interspaces feebly convex, rugulose with remote, irregularly placed punctures, scutel white pubescent, denuded fascia not well defined; underside remotely punctulate, prothorax and pectus densely pubescent, abdomen sparsely so; pygidium not freely exposed, thighs feebly clavate, all armed with an acute tooth; tibiæ not very slender, straight, anterior feebly bisinuate internally; tarsi less slender, first three joints broad, not longer than wide, fourth joint less slender and a little shorter than in the three preceding species. Long. 2—2.2 mm.; .08—.09 inch.

Hab.—Missouri, Illinois, District of Columbia, Pennsylvania.

Similar in size and habitus to *corvulus*, from which it differs by the prothorax being more strongly rounded on the sides and less coarsely punctured, the denuded elytral fascia and the tarsi shorter and more robust. From *consimilis*, of the present group, which it resembles in appearance, it differs by its smaller size, shorter and relatively stouter beak and shorter tarsi; the first two joints of the funicle are also relatively shorter than in that species. It might also

be confounded with the dark variety of *musculus*, from which it can readily be distinguished by the shorter beak and tarsi, and the second joint of funicle distinctly longer than the third.

Comparison with the type of this species, in the LeConte collection at Cambridge, was kindly made by Dr. G. H. Horn.

A. sexguttatus n. sp.—Oblong, rufo-testaceous, pubescence whitish, fine and sparse. Beak not slender, curved, about as long as head and thorax, finely punctured, somewhat shining, with a fine, elevated median line. Antennæ moderately slender, second joint of funicle very little longer than the third, joints 3-7 transverse, club dusky. Eyes feebly convex posterior margin free and more than usually approximate upon the front. Head convex occiput finely alutaceous, dusky; front with several rows of piliferous punctures and with a long and distinct sulcus between the eyes. Prothorax wider than long, sides rounded, broadly but not strongly constricted at the apex, transversely impressed in front, rather finely and not very densely punctured, except on the sides, where the punctures become a little more crowded and coarser. Elytra less than one-fourth wider at base than the prothorax, suboval, a trifle wider posteriorly; sides feebly rounded; striæ impressed, punctures moderately large, round and closely approximate; interspaces slightly convex, with an irregular row of small punctures and somewhat rugulose; scutellar space and along the suture dusky, denuded fascia rather broad, extending from the side to the third or second interspace, lines of pubescence not well marked; scutellum, intrahumeral spot and a spot on the anterior and posterior margin of the denuded fascia, on the fourth interspace more densely pubescent, between the latter two spots is a dark line; underside and legs thinly pubescent and remotely punctulate. Legs not very slender, thighs rather strongly clavate, anterior with a large, triangular tooth, middle with a small tooth, posterior thighs mutic; anterior tibiæ feebly bisinuate internally, middle and posterior straight. Long. 2 mm.; .08 inch.

Hab.—Florida. Collection of Dr. Horn, Mr. E. A. Schwarz and H. Ulke.

This species greatly resembles *rufipennis* of the *gularis* group, but is smaller, and differs further by the front being sulcate, the anterior thighs with a single tooth and the posterior thighs mutic.

The first two ventral segments are relatively shorter in this than the other species of this group, and the spots of condensed pubescence on the elytra give it a peculiarly striking appearance.

A. interstitialis n. sp.—Elongate, subovate, black; pubescence very fine and scant above; side pieces of thorax and sides of abdomen densely clothed with pale yellowish, squamiform pubescence. Beak rather slender, punctured, with the median carina distinct. Antennæ rufo-piceous, rather robust, first and second joint of funicle rather slender, elongate; joints 3-7 rounded, outer ones but little wider. Eyes scarcely convex and but indistinctly free behind. Head subopaque, finely alutaceous, with several concentric rows of very small, piliferous punctures; front with a fine, somewhat interrupted line. Prothorax but little

wider at the base than long, sides strongly rounded and narrowed to the tip, the latter constricted; base scarcely emarginate each side, disc more remotely, sides more densely punctured, punctures variable in size from medium to coarse; pubescence condensed in front of the scutellum. Elytra one-third wider at the base than the prothorax, oblong and rather shining, a little widened posteriorly, sides nearly straight; striæ feebly impressed, punctures moderate, round and not closely approximate; interspaces nearly flat, smooth, with a few small punctures; second, fourth and sixth wider than the adjacent interspaces, denuded fascia extending to the third interspace; lines of pubescence faintly marked. Legs and tarsi long and slender, thighs scarcely clavate, anterior and middle armed with a very small, acute tooth, posterior mutic; tarsi densely pubescent beneath. Long. 2—2.5 mm.; .08—.10 inch.

Hab.—White Fish Point, L. Sup.; District of Columbia.

Two specimens (♂ and ♀) in Mr. Schwarz's collection.

A very distinct and easily recognized species.

nigrinus Group.

The species of this group differ from those of the two preceding ones by the fifth ventral segment of the male being longer than the fourth, the third and fourth equal in length, or very nearly so. In some specimens the fifth ventral is not longer than the fourth; in this case, however, the third and fourth are always equal and shorter than in the two preceding groups.

The species are closely related, and are to be distinguished as follows:

All the thighs armed with a single tooth.

Black; front foveate.

Robust; anterior and middle tibiæ curved inward near the apex; first joint of anterior tarsi twice as long as the second; femoral tooth spiniform ..... **ebeninus.**

Less robust; tibiæ straight, first tarsal joint scarcely longer than the second; femoral tooth acutely triangular..... **nigrinus.**

More elongate; tibiæ curved near the base; first tarsal joint longer than the second; femoral tooth large..... **albopilosus.**

Piceous or blackish, with æneous lustre; front sulcate between the eyes.

Pubescence uniform; elytra without denuded fascia or lines of condensed pubescence.

Larger and more robust; base of middle and hind thighs and distal half of tibiæ and tarsi, honey-yellow. ..... **xanthocnemus.**

Smaller and more slender; legs piceous, tibiæ and tarsi paler.. **æneolus.**

Elytra very coarsely striato-punctate with partially denuded fascia and lines of condensed pubescence. ..... **faber.**

Posterior thighs mutic, elytra with denuded fascia.

Less robust, front sulcate, upper surface rather densely clothed with squamiform pubescence, denuded fascia ill-defined..... **effetus.**

Very stout, front foveate, upper surface less densely pubescent, denuded fascia well defined..... **scutellatus.**

A. ebeninus n. sp.—Robust, ovate; black, with a faint æneous lustre and rather conspicuously clothed with white pubescence, which is more dense on the under surface. **Beak** long and slender, feebly curved, punctured, scarcely striate. **Antennæ** long and slender, scape and first joint of funicle rufo-testaceous, remainder rufo-piceous; first joint of funicle long, not very stout, second joint longer than the third, outer joints scarcely wider, club rather loosely articulate. **Eyes** somewhat prominent, convex, posterior margin free. Head convex, occiput impunctured, front finely punctured and pubescent, especially between the eyes, frontal fovea elongate, rather deep. Prothorax fully one-half wider than long and nearly twice as wide at the base than at the apex, latter scarcely constricted; sides regularly rounded from the base, latter biemarginate; surface densely and rather coarsely punctured, punctures subconfluent on the sides, each bearing a whitish hair; scutellum oval, densely pubescent. Elytra shining, one-fourth wider at the base than the prothorax; oval, sides feebly rounded; striæ impressed, punctures round, small and closely approximate; interspaces slightly convex, each with about three irregular rows of fine, piliferous punctures; pubescence evenly distributed, except a small intra-humeral spot, which is more densely pubescent; underside densely punctured, pubescence scarcely as long as above; pygidium fully exposed, punctured. Legs long and slender, thinly pubescent; femora slender, feebly clavate, armed with a spiniform tooth; tibiæ long and slender, sinuate internally, anterior and middle curved inward near the apex, posterior straight; tarsi slender, first joint of anterior almost twice as long as the second; claws armed with a long slender tooth. Long. 3.5 mm.: .14 inch.

Hab.—Lower California; exact locality not stated.

A ♂ and ♀ specimen in Mr. Ulke's collection, who received it very recently from the above locality.

The mesosternum is moderately wide between the coxæ, where it ends in an elevated, transverse ridge, and slopes very gradually in front. The third and fourth ventral segments are of equal width, and the fifth distinctly longer than either; the pygidium is freely visible from below.

This species, although very distinct, is closely allied to *flavicornis*, *nigrinus* and *albopilosus*. It resembles *flavicornis* so closely that, if viewed from above, it cannot be distinguished, except by its somewhat greater size; the abdominal formation, however, is strikingly different, the beak, legs and tarsi much more slender; the first joint of the anterior tarsi twice as long as the second, while equal in *flavicornis*. From the next species it differs by its being more robust, the beak more slender, thorax less coarsely punctured, the femoral tooth spiniform, the anterior and middle tibiæ curved near the apex, and the more slender tarsi with the first joint nearly twice the length of the second. The elytra, also, are a little more strongly striato-punctate, and the pubescence much more conspicuous than in that species.

From *albopilosus* it differs by its stout form, the elytra less coarsely striato-punctate; the femora are more slender, the tooth smaller, and the tibiæ are not curved near the base.

A. nigrinus Say.—Subovate, robust, pitchy-black, thinly clothed with fine, whitish pubescence. Beak not very slender, opaque, coarsely punctured with the median elevated line distinct, shining, and striate each side from the base to about the middle; scrobes slightly curved inferiorly and rather superficial. Antennæ inserted about the middle, slender, piceous; first joint of funicle robust, second elongate, slender; following joints gradually wider. Eyes feebly convex and scarcely free behind. Head short, spherical, with a few, rather large, remote punctures, front deeply foveate. Prothorax wider than long, sides broadly rounded from the base, moderately narrowed anteriorly and scarcely constricted at the apex; equally, densely and coarsely punctured. Elytra oval, one-third wider at the base than the prothorax and about one-half longer than wide, finely striato-punctate, punctures not approximate; interspaces flat, remotely punctulate; scutellum densely clothed with white pubescence; under surface a little more coarsely and densely pubescent; side pieces of thorax and abdomen with a few remote punctures. Legs slender, femora feebly clavate, armed with a small, acute tooth; tibiæ rather slender, nearly straight; tarsi long and moderately slender, fringed with white hair. Long. 3 mm.; .12 inch.

Hab.—District of Columbia, North Carolina, Louisiana, Virginia.

Not unlike *flavicornis*, from which it differs in the abdominal formation, more coarsely punctured thorax and pitchy-black antennæ. Might also be confounded with *morulus*, but is more robust and less convex, and the elytra more shining. Its resemblance to *ebeninus* has been noted under that species.

A. albopilosus n. sp.—Oblong-elliptic; black, somewhat shining, not densely clothed with long, white pubescence. Beak longer and more slender than in *nigrinus*; smooth, shining, sparsely and finely punctured; substriate from the base to about the middle, median elevated line well marked, shining; scrobes straight. Antennæ slender, inserted about two-fifths (♂) or one-half (♀) from the apex; rufo-testaceous, first joint of funicle long and less stout, second joint a little more slender, elongate; following joints scarcely wider than long. Eyes almost flat, not at all free behind. Head subconical, somewhat shining, and rather coarsely punctured, frontal fovea deep. Prothorax a little wider than long, rather strongly narrowed in front and feebly constricted at the apex, sides broadly rounded; surface closely, but not very coarsely punctured; base nearly straight each side. Elytra oblong, shining, but little wider at the base than the prothorax, feebly rounded on the sides and gradually narrowed to the tip, coarsely striato-punctate, punctures rounded, approximate; interspaces moderately convex, punctured; under surface rather coarsely, but not very closely punctured, more densely and coarsely pubescent. Legs long and slender, femora clavate, armed with a triangular tooth, which is larger and very prominent on the anterior pair; tibiæ slender, anterior strongly curved near the base and bisinuate internally; tarsi long and slender. Long. 2.8–3.3 mm.; .11—.13 inch.

Hab.—California, Texas, New Mexico.

A very distinct species, differing from the preceding by its longer and denser pubescence, the anterior tibiæ curved near the base, the large anterior femoral tooth, and also its more slender form.

The fifth ventral segment is twice as long as the fourth; the pygidium remotely punctured, pubescent in the male, glabrous in the female.

Taken in large numbers at Albuquerque, N. Mexico, by F. H. Wickham.

A. xanthoenemus n. sp.—Robust, dark piceous, with a faint æneous lustre, clothed above with coarse whitish pubescence, which becomes denser and more squamiform on the under surface. Beak long and slender, opaque (♂) or shining (♀), slightly compressed at the base; flattened, and a little wider at the apex; scrobes linear, straight and deep. Antennæ slender, testaceous, inserted scarcely two-fifths from the apex; first joint of funicle long and slender, joints 2-4 somewhat elongate, subequal, 5–7 shorter; club loosely articulate, dusky. Head broadly conical, smooth, with a few small distant punctures; front sulcate between the eyes, the latter moderately convex, not or scarcely free behind. Prothorax much wider than long, strongly narrowed in front, base bisinuate; sides nearly straight behind, strongly rounded in front and constricted at the tip; surface rather densely and coarsely punctured, except anteriorly, where the punctures become smaller and more distant; transversely impressed behind the anterior margin; pubescence somewhat condensed along the median line and on the sides. Elytra broadly oval, striæ deeply impressed, punctures rather large and closely approximate; interspaces convex, rugulose and irregularly punctured; scutellum densely pubescent; side pieces of thorax and abdomen finely and remotely punctured. Legs slender, thighs clavate, all armed with a small, acute tooth; base of middle and hind thighs, and distal half of all the tibiæ pale testaceous, latter slender, anterior tibiæ feebly bisinuate internally; tarsi slender, dusky. Long, 2.5—3 mm.; .10—.12 inch.

Hab.—Canada (Dr. Horn), Michigan (E. A. Schwarz), Illinois, Wisconsin (H. Ulke), Texas.

This species has been confounded with *flavicornis*, from which it is easily distinguished, aside from structural differences, by the coloration of the legs. It varies somewhat in sculpture. A specimen in my collection which I refer, with some hesitation, to the present species, has the elytra rather finely punctato-striate. It is closely related to the two following species.

A. æneolus n. sp.—Closely allied to the preceding, but is smaller and much less robust, blackish with æneous lustre; pubescence white and fine. Beak shorter and a little stouter, not flattened at the apex; scrobes shorter. Antennæ rather stout, inserted about one-half from the apex and entirely testaceous, club slightly darker; second and third joint of funicle not elongate, former a trifle longer than the latter, following joints transverse. Eyes more strongly convex and free behind. Prothorax less coarsely and less densely punctured. Elytral

striæ finely impressed, except near the base; punctures small, elongate and not closely approximate; intra-humeral spot and scutel densely white pubescent, apical half of tibia and tarsi paler. Long, 2.1—2.5 mm.; .08—.10 inch.

Hab.—Los Angeles, Cal.; Arizona; Columbus, Texas. Coll. of Mr. E. A. Schwarz and Mr. A. Bolter.

Varies somewhat in the æneous lustre; some specimens have the first two joints of the funicle a little longer than in others.

A. faber n. sp.—Stout, subovate, pitchy-black and rather densely clothed with coarse, grayish white pubescence. Beak not very slender, subopaque and rather coarsely striato-punctate, median carina obsolete pubescent at the base. Antennæ moderately stout, rufo testaceous, club dusky; second joint of funicle longer than the third. Eyes convex, free behind. Head convex, finely rugulose, with a few, very small punctures; front with an ill-defined longitudinal sulcus and more densely pubescent. Prothorax about one-half wider than long, strongly narrowed in front, base bisinuate; sides strongly rounded, apex feebly constricted; surface coarsely and rather densely punctured; pubescence more dense on the sides and along the median line. Elytra fully one-third wider than the prothorax at base, broadly subovate, less than one-half longer than wide, and a little wider behind the middle; striæ wide and deeply impressed, punctures large, rounded and very closely placed; interspaces convex, finely rugose, two rather broad and ill-defined lines of condensed pubescence extending from the sides to about the third interspace, where they coalesce; the space included between these two lines is but little less pubescent than the rest of the surface; under side punctured. Legs and tarsi less slender, rufo-piceous; femora moderately clavate, all armed with a small, acute tooth. Long. 2.5 mm.; .10 inch.

Hab.—Texas. Coll. A. Bolter and my own.

Resembles *xanthocnemus* in size and general sculpture, but is a little more robust, antennæ stouter, joints 3–7 of funicle short; the presence of a partially denuded elytral fascia surrounded by lines of pubescence and different coloration of legs.

A. effetus n. sp.—Subovate, pitchy-black, rather densely clothed above and beneath with grayish white or yellowish, suberect, squamiform pubescence. Beak slender, curved, more densely punctured from base to about the insertion of the antennæ, more remotely punctured and shining toward the apex, with three elevated lines, sparsely pubescent. Antennæ rather slender, rufo-testaceous, club dusky; second and third joints of funicle equal. Eyes convex, not free behind. Head coarsely and closely punctured; front flattened, with a long, sharply impressed longitudinal line. Prothorax wider than long, not strongly narrowed anteriorly, sides broadly rounded from the base, constricted at the apex and transversely impressed behind the anterior margin, base bisinuate; surface densely and finely punctured; the pubescence is a little more condensed along the median line and on the sides. Elytra one-fourth wider at base than the prothorax and a little wider behind the middle than at base, rather coarsely striato-punctate, punctures large and rather close; interspaces convex, punctu-

late; under surface with a few small, remote punctures. Legs and tarsi slender, rufous, femora infuscate, moderately clavate, posterior not toothed. Long. 2.8 mm.; .11 inch.

Hab.—California, Oregon. Mr. Ulke's collection.

The pubescence being rather coarse, squamiform, this species might be placed among those of the *squamosus* group, with which, however, it agrees less in habitus than those of the present group. One specimen from Oregon has the posterior thighs obsoletely toothed and the pubescence a little more yellowish. I cannot, however, discover any other material difference. It resembles *A. murinus*, but is more robust.

A. scutellatus Gyll. Pl. vi, fig. 16.—Oval, black, shining; pubescence rather fine, whitish and not dense above, with spots and lines of white scales; under surface densely clothed with white scales. Beak moderately slender, subopaque, punctured and striolate, median carina entire, indistinctly striate and pubescent near the base. Antennæ rather stout, rufo-piceous, second joint of funicle scarcely longer than the third, outer joints wider, transverse. Head somewhat conical, convex and rather coarsely punctured, each puncture bearing a hair, frontal puncture small, or nearly obsolete. Eyes feebly convex, free behind. Prothorax much wider than long, strongly narrowed in front, base feebly bisinuate, sides strongly rounded behind, apex constricted, transversely impressed behind the anterior margin; surface rather finely and not very densely punctured with a median and lateral vittæ of white scales. Elytra more than one-fourth wider at the base than the prothorax, oval, not wider behind the middle; striæ wide, impressed, punctures large, approximate; interspaces rather convex, punctulate, shining; scutellum densely clothed with white pubescence, a line behind the latter, an intra-humeral line or spot, two transverse, curved and more or less interrupted lines behind the middle and enclosing a large denuded spot of dense, white scaly pubescence; the anterior transverse line extends in front along the eighth interspace. Legs and tarsi rather stout, thighs clavate, anterior and middle with a small acute tooth, posterior thighs unarmed; tibiæ nearly straight, a little widened toward the apex; tarsi rufous. Long. 2.4—2.7 mm.: .10—.11 inch.

Hab.—Eastern and Western States.

An easily recognized and well known species; the pubesence is readily rubbed off.

A specimen in Mr. Bolter's collection is of a light brown color with the pubescence yellowish.

Juniperinus Group.

Three dissimilar species constitute this group. In all of them the claws are armed with a small, sharp basal tooth. The abdominal segments are subequal, first and second only moderately long, third and fourth subequal, fifth short in the male; they are pubescent,

both on the upper and under surface, and the pubescence not condensed in patterns or markings.

They may be easily distinguished as follows:

Dark brown or black.
Elytra not wider behind, pubescence yellow, mesosternum not carinate.
dissimilis.
Elytra wider behind, pubescence very sparse, whitish, mesosternum carinate.
orchestoides.
Testaceous, elytra with a dark, oblique spot..... .....**juniperinus.**

A. dissimilis n. sp.—Elongate oval, brown; head, rostrum and underside of trunk nearly black, thinly clothed above with yellow pubescence, underside of thorax densely pubescent. Beak long and slender, curved, not shining, neither punctured nor striate, a few short hairs at the base. Antennæ fuscous, rather robust, inserted about the middle (♀) of the rostrum; first joint of funicle long and stout, second longer than the third; joints 3-7 rounded and gradually wider, club closely articulate. Eyes feebly convex, posterior margin not at all free. Head convex, finely rugulose, with a few small, remote, piliferous punctures, thinly pubescent between the eyes; frontal fovea small, elongate. Prothorax much wider than long; sides nearly straight behind the middle, rather strongly narrowed in front and feebly constricted at the tip; base scarcely emarginate each side, and hardly produced in front of the scutellum; surface not very densely punctured, punctures moderate. Elytra about one-fourth wider at the base than the prothorax, oblong oval, sides feebly rounded, not wider posteriorly and gradually rounded to apex, which is dehiscent; striæ moderately impressed, punctures small, approximate; interspaces slightly convex, rugulose; scutel and intra-humeral spot more densely pubescent; the mesosternum is declivous in front, densely pubescent and extends a little beyond the middle between the coxæ; abdomen sparsely pubescent and finely punctured. Legs rather slender, thighs feebly clavate, anterior with a small, spiniform tooth; middle scarcely toothed; the tibiæ are slightly widened from base to apex, straight, with the articular surface very oblique and the apical armature smaller than usual; tarsi moderately slender, first joint longer than the third; claws armed with a very slender tooth, parallel with its fellow, and does not reach to the middle of the claw. Long. 3 mm.; .12 inch.

Hab.—Virginia.

A single ♀ in my collection found among a lot of loose material sent me years ago by Mr. H. Ulke, of Washington, and labeled "Virginia."

This species is an exact reproduction of *A. ungularis* in form, color and pubescence, but for the 7-jointed funicle, absence of elytral fascia and very slender tooth of claw, it could not possibly be distinguished. The fifth ventral segment is longer than the preceding.

A. orchestoides n. sp.—Elongate-ovate, black, somewhat shining, and very thinly clothed with fine, white pubescence, which is scarcely more dense on the under surface than above. Beak rather stout, slightly widened toward

the apex, with three feebly elevated lines from base to middle and finely corrugate between, remotely punctured and somewhat shining toward the apex. Antennæ stout, rufo-testaceous; first joint of funicle very robust, second longer than the third; joints 3-7 rounded. Eyes feebly convex. Head convex, impunctured, finely rugose and sparsely pubescent between the eyes; fovea feeble, elongate. Prothorax wider than long, but little narrower at the apex than at base, sides rounded, widest about the middle; base nearly straight, scutellar lobe obsolete; surface coarsely and rather closely punctured. Elytra a little wider at the base than the prothorax, subovate, widened to and more convex behind the middle, rather suddenly narrowed to and conjointly rounded at the apex; striæ fine, punctures moderately small and not closely approximate; interspaces slightly convex and somewhat rugulose, pubescence scarcely perceptible; mesosternum horizontal, subcariniform between and extending as far as the posterior margin of the coxæ; under surface with a very few, small punctures. Legs rather slender; femora all armed with a sharp, distinct tooth; tibiæ slender, not widened toward the apex, articular surface very oblique, terminal armature more evident than in the preceding; claws armed similarly as in *dissimilis*, but the tooth is rather shorter and a little more obtuse. Long. 1.7—2 mm.; .07—.08 inch.

Hab.—Maryland.

A ♂ and ♀ specimen in Mr. Ulke's collection.

In form this species is not unlike *Orchestes rufipes* Lec.

A. juniperinus Sanb.—Subovate, testaceous; rather densely clothed with pale yellowish pubescence. Beak darker, long and slender, shining, nearly straight and a trifle wider at the apex, striato-punctate from the base to about the middle, sparsely punctured in its distal half; scrobes commencing about the middle, straight. Antennæ slender, first joint of funicle elongate, about as long as the three following joints united, second joint longer than the third; joints 3-7 rounded, outer ones scarcely wider. Eyes rather convex, not free and surrounded by a line of yellow pubescence. Head convex, occiput finely and remotely punctured and correspondingly pubescent, more densely pubescent between the eyes; frontal fovea elongate. Prothorax wider than long, not strongly narrowed in front, sides feebly rounded; base bisinuate; surface finely and not closely punctured, pubescence equally distributed. Elytra scarcely wider at the base than the prothorax, slightly widened to behind the middle and thence strongly rounded to the apex; striæ fine, feebly impressed, punctures small, not closely approximate; interspaces wide, nearly flat, rugulose; an oblique, dark, denuded spot about the middle, extending from the fourth to the second interspace; underside of trunk darker, sparsely punctured; pygidium exposed. Legs slender, femora feebly clavate, all armed with a rather large, triangular tooth; tibiæ long and slender, nearly straight and but little widened towards the apex; claws blackish, tooth short, acute. Long. 2.2 - 2.8 mm.; .09—.11 inch.

Hab.—Massachusetts, West Virginia, Maryland, Georgia.

The anterior coxæ are more prominent than usual, and the ventral sutures curved slightly backward at the sides; the beak, also, in repose seems to be deflected further backward than is usual among other members of this tribe.

This species, at once recognized by its pale testaceous color and dark elytral spot, has a remarkable similarity to *Nanophyes transversus* Aubé of Southern Europe, and which, according to Desbrochers,* was described by Chevrolat as *Anthonomus juniperi*.

squamosus Group.

Contains all those species with 7-jointed funicle, in which both the upper and under surface are predominantly clothed with scales. The scaly vestiture, while dense in most of the species, is sparse and intermixed with a fine pubescence in some. The scales also vary from almost round to very elongate, piliform. The ventral segments are less unequal than in the majority of the pubescent species. Some of the vittate forms show great similarity to the species of the subgenus Cnemocyllus, from which they differ merely by the hind tibiæ of the male not being dissimilar from those of the female.

The species may be tabulated as follows:

Stout species; all the femora armed with a tooth.
Anterior thoracic opening very oblique, prosternum short in front of the coxæ.
Elytra without transverse, partly denuded fascia.
Beak and antennæ slender; legs reddish, or rufo-piceous.
Larger; beak long and very slender; first and second joint of funicle elongate.
Not densely clothed with scales, which are more or less piliform; color pitchy-black, legs rufo-piceous..... **ater.**
Densely clothed with oval scales, reddish to rufo-piceous, legs rufous. **squamosus.**
Smaller; beak shorter and less slender, first and second joint of funicle less elongate ..... **tectus.**
Beak and antennæ stouter, second joint of funicle scarcely longer than the third, legs dark piceous..... **squamulatus.**
Elytra with dark, transverse, partly denuded fascia..... **molochinus.**
Anterior thoracic opening less oblique; prosternum more elongate in front of the coxæ.
Prothorax strongly constricted at the apex; beak and antennæ stouter, second joint of antennæ scarcely longer than the third... **rufipes.**
Prothorax not constricted at the apex; beak and antennæ slender, second joint of funicle longer than the third..... **disjunctus.**
More or less elongate, hind femur not toothed.
Scales piliform; elytra wider at the base than the prothorax.
Eyes as widely separated above as the width of rostrum at the base, more elongate; prothorax scarcely wider than long.
Second joint of funicle longer than the third, scales very small and less dense ..... **murinus.**

* Op. cit. p. 446.

Second joint of funicle scarcely longer than the third, scales larger and very dense ..... **hirtus.**

Eyes less widely separated above, a little more robust; prothorax distinctly wider than long..... **ochreopilosus.**

Scales oval; elytra scarcely wider at the base than the prothorax, mottled. **paupereulus.**

A. ater Lec.—Oblong oval, black, rather thinly clothed above with whitish or ashy-gray piliform scales. Beak long and slender, feebly curved, sparsely pubescent near the base, opaque and densely punctured (♂), or finely and remotely punctured, shining (♀), distinctly striate (♂), or obsoletely so (♀). Antennæ slender, rufous, clava darker; first and second joint of funicle long and slender, following joints subturbinate, not wider than long, club densely pubescent. Eyes feebly convex, not free behind; front somewhat flattened, obscurely impressed transversely, fovea elongate. Prothorax a little wider than long, sides broadly rounded and narrowed from base to apex, latter constricted; base scarcely emarginate each side; surface densely, but not coarsely punctured, each puncture bearing a scale, which become broader and larger along the median line, on the sides and under surface; scutel densely clothed with white scales. Elytra rather suddenly and about one-fourth wider at the base than the prothorax, suboval, a trifle wider behind; striæ fine, punctures elongate, approximate; interspaces almost flat, very slightly roughened; scales rather piliform, irregular in width and entirely concealing the derm, those of the alternate interspaces, especially the fourth and sixth, paler; underside of pectus densely covered with grayish white scales; abdomen coarsely pubescent. Legs slender, rufo-piceous; femora clavate, armed with a sharp, triangular tooth; tarsi slender, paler. Long. 3.6—5 mm.; .14—.20 inch.

Hab.—California, Oregon.

Closely allied to *squamosus*, from which, indeed, it differs but little structurally, except in the form and density of the scales. Comparison will show at once that it should not be placed among the pubescent species.

A. squamosus Lec.—Oval, reddish brown to piceous, densely covered with grayish white, or pale yellowish, oval scales; otherwise, like the preceding species, from which it differs, aside from coloration, form and density of scales, as follows: Beak reddish brown, more shining, less punctured and scarcely striate. Prothorax more distinctly wider than long. Elytra scarcely one-fourth wider than the prothorax at its base, humeri more oblique; striæ and punctures more concealed by the scales. Legs reddish brown. Long. 3.5 - 4.5 mm.; .14—.18 inch.

Hab. —Kansas, Colorado, New Mexico, California, Nebraska.

Varies considerable in form, coloration and density of the scaly vestiture. The alternate elytral interspaces are paler in some specimens, giving them a vittate appearance, more or less marked.

Two variations, deserving special mention, occur:

Var *a.*—Scales uniformly grayish white, less closely adherent to the derm. Each elytral interspace with an irregular row of suberect, setæ-like hair.

Occurs in New Mexico, California.

Var. *b*.—Smaller than the average specimens; less densely scaly, scales smaller, those of the prothorax piliform; beak of ♂ more distinctly striate.

Three specimens: Kan., Nebr. Coll. Dr. Horn and H. Ulke.

A. tectus Lec.—Oval, pitchy brown, densely clothed with ovate, white and yellowish gray scales. Beak shorter and less slender than in *squamosus*, curved, punctato-striolate, not shining; median carina and a stria each side more or less distinct, pubescent at the base. Antennæ somewhat robust, rufo-testaceous, club dusky; first and second joint of funicle elongate. Eyes feebly convex, not free behind. Head densely scaly, frontal fovea linear. Prothorax wider than long, narrowed from the base to the apex, latter scarcely constricted, sides feebly rounded; base slightly bisinuate; surface densely and finely punctured, punctures concealed by the scales, which are more dense along the median line and on the sides; scutel densely scaly. Elytra rather suddenly and about one-third wider at the base than the prothorax and almost ovate in form; striæ impressed, punctures rather coarse and irregular and almost entirely concealed by the scales; interspaces feebly convex, punctulate; suture and fourth to seventh interspace from the base paler, extending furthest on the fourth and least on the seventh. Legs slender, reddish, pubescent; thighs feebly clavate, all armed with a distinct triangular tooth; tarsi slender. Long. 3 - 3.2 mm.; .12—.13 inch.

Hab.—Arizona, New Mexico, Colorado, Utah.

Only five specimens are before me. Readily distinguished from *squamosus* by its smaller size, shorter, stouter and more strongly curved beak, which is not shining. The elytra, also, are more suddenly and conspicuously wider at base than the prothorax.

A. squamulatus n. sp.—Subovate, black and somewhat shining, rather sparsely clothed above with small, white, broadly oval scales, intermixed with fine, suberect pubescence; under surface densely scaly. Beak short, robust, curved and widened toward the apex, subopaque, densely punctured with a median, distinct and lateral obscurely elevated line, sparsely pubescent. Antennæ robust, rufous, inserted less than one third from the buccal opening; first and second joint of funicle not slender, latter but little longer than the third, joints 3-7 transversely rounded, club darker, pubescent. Eyes more convex and slightly free behind. Head coarsely punctured, pubescent and transversely impressed above the eyes; long, impressed frontal line. Prothorax one-half wider than long, strongly narrowed in front; base feebly biemarginate, sides more strongly rounded behind the middle, apex distinctly constricted; surface densely and rather coarsely punctured, a narrow median line and lateral vitta of large, white scales, rest of the surface pubescent. Elytra broadly oval, about one-fourth wider at the base than the prothorax; humeri rounded, striæ wide, impressed; punctures rather large and not very close; interspaces convex, finely rugose and irregularly punctured; scutel, suture, a short basal vitta on the sixth and another beginning about the middle of the fourth interspace, of dense, white scales; pygidium convex, punctured. Legs moderately stout, piceous, sparsely pubescent; thighs clavate, armed with a sharp, subspiniform tooth;

tibiæ rather short and stout, anterior and middle strongly bisinuate internally and subangulate about the middle; tarsi not very slender. Long. 2.7 mm.; .11 inch.

Hab.—Wisconsin, Missouri.

Two males in my collection. A very distinct species; differs from *tectus* by its smaller size, short and robust beak, and the anterior and middle tibiæ strongly bisinuate and subangulate along the internal margin; also closely allied to *rufipes* Lec. by the form of rostrum and tibiæ, but is smaller and the prosternum is short in front of the coxæ.

A. molochinus n. sp.—Oval, rufo-piceous, clothed with small, pale scales, intermixed with very fine pubescence, which do not conceal the derm. Beak long and rather slender, piceous, somewhat shining, punctured; median carina and striæ each side distinct; sparsely pubescent; hairs recurved. Antennæ slender, rufo-piceous, outer joints of funicle and clava darker; first and second joints of funicle long and slender, following joints rounded, club densely pubescent. Eyes feebly convex, not free. Head black, shining, punctured, occiput sparsely, interocular space densely scaly. Prothorax nearly twice as wide as long, strongly narrowed in front and constricted at the tip: base slightly biemarginate; sides broadly rounded from the base; surface densely punctured, punctures small and superficial, each one bearing a short squamiform hair, an ill-defined median and lateral vittæ of larger scales. Elytra oval, with feeble lustre, more than one-fourth wider at the base than the prothorax; humeri rounded; striæ fine, impressed; punctures large, rounded, and not closely approximate; interspaces nearly flat, punctured; scutellar and sutural region darker; a broad, partially denuded patch each side behind the middle extending from the sides to about the fourth interspace and surrounded by a line of condensed scales; scutellum, post-scutellar line, short basal vitta on the sixth, an abbreviated vitta about the middle of the fourth interspace white; underside pitchy-black, prothorax and pectus densely scaly; abdomen thinly pubescent. Legs long and slender, rufous, thinly pubescent; femora feebly clavate, all armed with a very small, sharp, spiniform tooth; tibiæ slender, anterior feebly bisinuate; tarsi slender, reddish, third and last joint dusky. Long. 3 mm.; .12 inch.

Hab.—Montana. Four specimens, coll. E. A. Schwarz, H. Ulke and my own.

Very distinct; might, perhaps, with equal propriety be referred to the pubescent species, the whole habitus, arrangement of elytral vittæ, however, place it unmistakably in the present group, while the conspicuous, partially denuded elytral fascia, distinguishes the present from all the other members of the same.

A. rufipes Lec.—Oval, pitchy-black, antennæ and legs ferruginous, thinly clothed above with grayish scales intermixed with fine pubescence, under surface more densely scaly. Beak rather short and stout, feebly curved, slightly enlarged at the tip (♂), punctured and sparsely pubescent, distinctly carinate and

striate. Antennæ robust, second joint of funicle scarcely longer than the third, club dusky. Eyes convex, slightly free behind. Head somewhat shining, punctured and pubescent; front transversely impressed, fovea small, elongate. Prothorax much wider than long, strongly narrowed anteriorly and constricted at the apex, basal bisinuation feeble; sides strongly rounded, transversely impressed in front; surface densely and deeply punctured, especially on the sides, each puncture bearing a scale-like hair, three indistinct vittæ of broader scales. Elytra oval, about one-fourth wider at the base than the prothorax; humeri rounded, sides rounded, not wider behind, striæ well impressed, coarsely punctured, punctures round, not closely placed; interspaces feebly convex, punctulate and slightly rugulose; scutel and alternate interspaces clothed with paler scales. Abdomen not densely pubescent. Legs stout, femora strongly clavate, all armed with a sharp, well-marked tooth; tibiæ stout and rather short, wider towards the apex, anterior strongly bisinuate internally; tarsi stout, first joint scarcely elongate; claws dusky, tooth very large. Long, 3—3.2 mm.; .12—.13 inch.

Hab.—Illinois (Dr. Hamilton and A. Bolter), Iowa.

The identification of this species, which was doubtful from the description as given by LeConte, has been verified by my friend, Dr. Horn, by comparison with the type in the author's collection at Cambridge.

The differentiation from *squamulatus* has been referred to under that species.

A. disjunctus Lec.—Oblong-oval, dark piceous, not densely clothed above with pale or brownish scales; under surface densely squamous. Beak longer and more slender than in *rufipes;* shining, finely punctured and striate, sparsely pubescent. Antennæ slender, scape and basal joint of funicle ferruginous, rest darker; second joint of funicle elongate, longer than the third. Eyes feebly convex and not free behind. Head convex, somewhat shining, coarsely punctured and pubescent, frontal fovea elongate. Prothorax a little wider than long, gradually narrowed from base to apex, feebly biemarginate at base; sides feebly rounded, not constricted at the tip; surface coarsely and densely punctured, three dorsal vittæ of white scales. Elytra oval, not wider at base than the prothorax, coarsely striato-punctate; interspaces feebly convex, punctulate, a vitta of white scales on the basal half of the sixth and another on the middle third of the fourth interspace. Legs and tarsi rather slender, brownish red; thighs feebly clavate, armed with an acute tooth; tibiæ slender, nearly straight. Long, 3.2—3.5 mm.; .13—.15 inch.

Hab.—Georgia, Texas, Maryland, New Jersey.

Some specimens are clothed uniformly with white scales with scarcely an indication of vittæ.

A. murinus n. sp.—Oblong-elliptic, black, above not densely clothed with uniform, grayish white scales, which are small on the elytra and larger on the upper and under surface of the prothorax and pectus, where they become also more dense. Beak not very slender, cylindrical, curved, subopaque, finely punc-

tured and pubescent; a median and lateral elevated line, not very marked. Antennæ inserted remotely from the apex, rather stout, scape and first joint of funicle bright rufous, remainder fuscous; second joint of funicle longer than the third, following joints rounded. Eyes feebly convex, entirely lateral and widely separated above. Head densely punctured and pubescent; frontal fovea narrow, elongate. Prothorax scarcely wider than long, gradually narrowed from base to apex; base almost straight each side; sides very feebly rounded, apex slightly constricted and transversely impressed behind the anterior margin; surface densely, deeply, but rather finely punctured, and rather densely clothed with scales, which are larger than those of the elytra. Elytra rather suddenly and about one-third wider at base than the prothorax, elongate, sides almost parallel, gradually narrowed posteriorly, coarsely striato-punctate, punctures round, approximate; interspaces convex. Legs rufo-piceous, moderately slender, thighs not strongly clavate, anterior armed with a very small triangular tooth, middle and posterior mutic; tarsi slender, rufous; ventral segments 3-5 of male equal and separately, but little shorter than first or second; third and fourth segment of female shorter, fifth longer, rounded. Long. 3—3.5 mm.; .12—.14 inch.

Hab.—Oregon (H. Ulke), Colorado (Dr. Horn).

Two males and one female are before me. Closely allied to *hirtus*, but is less densely scaly above and the second joint of funicle is distinctly longer than the third. Not unlike *A. effetus* in form and coloration, but is a little more elongate, and the vestiture consits of true scales, while in the former it consists of suberect, scale-like pubescence.

A. hirtus Lec.—Of the same form and sculpture as the preceding, but a little smaller and densely covered with grayish or ochreous scales, which completely conceal the color of the derm, which varies from rufo-ferruginous to pitchy-black. Antennæ and legs rufo-ferruginous; the beak is more slender and scarcely striate or punctured; the second joint of funicle is scarcely longer than the third; three thoracic vittæ and along the suture paler, each elytral interspace with a row, more or less irregular, of short, suberect, piliform scales. Legs and tarsi as in *murinus*. Long. 2.8—3 mm.; .11—.12 inch.

Hab.—California, Arizona, Utah.

The scales vary in form from broadly oval to piliform. The suberect, scale-like hairs of the interspaces are almost obsolete in some specimens. Resembles also the next species.

A. ochreopilosus n. sp. Pl. vi, fig. 17.—Oval, less elongate than the preceding, rufo-piceous, upper and under surface densely clothed with ochreous, lanceolate, suberect scales. Beak a little shorter and less slender than in *hirtus*, curved and a little widened at the apex; shining, punctured and thinly pubescent, median elevated line not distinct. Antennæ ferruginous, moderately slender; second joint of funicle longer than the third. Eyes somewhat convex, less widely separated above than the base of the beak. Head short, punctured, and densely pubescent; frontal fovea elongate. Prothorax about one-half wider than

long, strongly narrowed anteriorly, apex not constricted, base bisinuate, sides rounded; surface densely and deeply punctured. Elytra oval, about one-fourth wider than the prothorax at base; humeri rounded, sides gradually rounded to apex, striate and punctured, punctures large, concealed by the scales; interspaces wide, flat, each elytron with several ill-defined, elevated lines. Abdomen less densely pubescent. Legs ferruginous, moderately stout, pubescent; femora clavate, anterior and middle armed with a small, acute tooth; tibiæ less slender, anterior bisinuate internally, terminal hooks curved and projecting beyond the extremity; tarsi slender, first and second joint scarcely elongate, last joint slender and almost as long as the three preceding joints together. Long. 2.6 mm.; .10 inch.

Hab.—California.

Two females in Mr. Ulke's collection.

Might easily be mistaken for *hirtus;* in fact, the descriptive phrase, as given by LeConte of that species, "densely clothed with coarse, scarcely squamiform, ochreous pubescence," applies far better to the species under consideration; it is, however, less elongate, the eyes slightly encroaching upon the front, the prothorax distinctly wider than long, the thighs more strongly clavate, and both anterior and middle armed with a tooth. The peculiar curved projection of the terminal hook of the anterior and middle tibiæ I do not remember of having observed in any other species. One of the specimens has a strongly marked, oblique impression each side of the prothorax. The unusual occurrence of this kind of sculpture in the present tribe is no doubt due to some disturbance in the earlier stages.

A. pauperculus Lec. Pl. vi, fig. 18.—Oblong-elliptic, rufo-piceous, densely clothed above and beneath with large, round, grayish white scales, mottled with brown on the upper surface. Beak moderately long, not slender, regularly curved; opaque (♂), or feebly shining (♀), striato-punctate, median elevated line distinct, pubescent at the base. Antennæ stout, rufous; first joint of funicle very stout, second not elongate, outer joints gradually wider, rounded, and like the club, darker. Eyes moderately convex, posterior margin not free. Head densely scaly, front with linear impression. Prothorax wider than long, gradually narrowed from the base, latter feebly bisinuate; sides broadly rounded, broadly, but feebly constricted at the apex; surface coarsely and closely punctured, punctures concealed by the scales, a broad brown stripe each side of the median line, latter and sides paler. Elytra oblong-oval, a little wider at the base than the prothorax; humeri oblique, sides broadly rounded to apex; striæ wide, impressed, punctures moderately large, not closely approximate and concealed by the scales, which are predominantly brownish in color; scutellum, peri-scutellar space, an irregular oblique stripe extending from humerus to about the middle of the suture, and an indistinct, transverse, posterior fascia, paler. Legs and tarsi long and slender, pale rufous; thighs slender, infuscate about the middle, anterior feebly, but distinctly toothed; tibiæ slender, nearly straight. Long. 2.2—2.4 mm.; .09—.10 inch.

Hab.—California.

The fifth ventral segment is not elongate. Varies in coloration, the markings becoming more distinct as the brown color predominates.

subfasciatus Group.

The species which I have included in this group have the funicle consisting of but six joints and the claws armed as usual with a long tooth. The species are of small size, and are to be distinguished as follows:

Brown, pubescent species; partially denuded, elytral fascia.
Front not foveate; fascia not reaching the suture ..... **latiusculus.**
Front foveate; fascia extending to the suture ..... **subfasciatus.**
Black, squamous species, no elytral fascia.
Beak longer and more slender ..... **robustulus.**
Beak shorter and stouter ..... **molesculus.**

A. latiusculus n. sp.—Robust, subovate · brown, thinly clothed with dirty white pubescence. Beak long, moderately slender, feebly curved, not shining, median carina and stria each side extending from the base to about the middle, pubescent at the base. Antennæ moderately slender, testaceous; first and second joints of funicle elongate, former stout, latter slender and longer than the third, which is a little longer than the fourth; joints 4-6 short, round; club dusky, closely articulate. Eyes convex, posterior margin free. Head convex, finely and remotely punctured and pubescent, rugulose; front not foveate. Prothorax much wider than long, narrowed from base to apex, latter broadly constricted, sides regularly rounded, base feebly biemarginate; surface not very densely punctured, punctures moderate; scutellum densely pubescent. Elytra much wider at the base than the prothorax, broadly ovate; humeri rounded, widest behind the middle and rather suddenly narrowed to apex; striæ feebly impressed, except the first and second, punctures moderately large, not closely placed, larger and closely approximate in the first and second striæ; interspaces rather wide, feebly convex, almost smooth, with feeble lustre, finely and remotely punctulate, transverse fascia not very obvious, extending from the sides to about the third interspace and surrounded, as usual, by a line of condensed pubescence, suture darker; under surface remotely punctulate and sparsely pubescent; ventral segments transversely striate, first and second moderately long, third to fifth segments gradually shorter. Legs moderately slender; anterior and middle femora clavate, feebly toothed, posterior more slender, tooth obsolete; tibiæ rather stout, gradually widened from base to apex, distal half and tarsi paler, latter stout, first and second joints not elongate, third bilobed, fourth short and stout, claws armed with a long and slender tooth. Long. 2 mm.: .08 inch.

Hab.—Texas, Virginia.

A ♂ and ♀ specimen are before me. Dr. Horn's and my own collection.

The general habitus and abdominal formation is that of the *signatus* group, and resembles somewhat *musculus*, but is much broader and more robust.

A. subfasciatus Lec.—Similar to the preceding, but less robust, reddish brown, with the pubescence yellowish and more conspicuous. Beak a trifle more slender, second joint of funicle not slender, longer than the third; third and fourth joints short, equal. Eyes and head as in the preceding, but the front is distinctly foveate. Prothorax a little longer, less transverse, apical constriction less pronounced, pubescence conspicuous and somewhat condensed along the median line; the elytra are less conspicuously wider at the base than the prothorax, the striæ a little more coarsely punctured, the first and second not more so than the rest; the denuded fascia is more evident, and extends from the sides to the suture; under surface more densely pubescent. Legs a little more slender; tibiæ, except the posterior, scarcely widened towards the tip. Long. 1.5—2 mm.; .06—.08 inch.

Hab.—New York, Canada, New Hampshire, Texas.

The elytra are generally paler, testaceous, but a specimen in Mr. Ulke's collection is of a dark brown color, thereby greatly resembling *latiusculus*.

A. robustulus Lec.—Broadly oval, black, sparsely covered with small, dirty white, cuneiform scales, which are a little larger and more condensed on the underside of the thorax. Beak long and slender, slightly widened toward the tip, punctured and finely striate from the base, scarcely pubescent. Antennæ fuscous, end of scape and first joint of funicle testaceous, second and third joints of funicle equal, and together a trifle longer than the three following joints together. Eyes nearly flat, scarcely free behind. Head convex, finely and remotely punctured, rugulose and thinly pubescent; frontal fovea distinct, elongate. Prothorax much wider than long, markedly narrowed from base to apex, the latter feebly constricted, sides rounded; surface rather convex, densely and rather coarsely punctured, each puncture bearing a piliform scale, which, however, become broader on the sides; base scarcely emarginate each side. Elytra but little longer than wide and about one-fourth wider at the base than the prothorax, feebly rounded on the sides and rapidly narrowed to the tip, strongly convex and declivous behind; striæ impressed, punctures elongate and closely approximate, coarser at the base; interspaces flat, scales arranged in three or four irregular rows; scutel and sutural interspace more densely scaly. Abdomen punctured; segments 1-2 about equal, moderately long, 3-5 short, equal; pygidium freely exposed. Legs ferruginous to dark piceous, moderately stout, femora feebly clavate, anterior and middle armed with a very small, acute tooth, posterior mutic; tibiæ slightly widened toward the apex; tarsi not slender, claws armed with a long tooth. Long. 1.8—1.2 mm.; .07—.08 inch.

Hab.—Nebraska, Montana, District of Columbia.

A specimen in Mr. Bolter's collection and one in my own, which I received from that gentleman some years ago, differ from the above description in the following points: Larger, the scales are larger, white; antennæ entirely testaceous, joints 2–4 of funicle equal in length, fifth and sixth wider. Prothorax depressed each side at the base, punctures smaller and more remote; elytra more finely striate-punctate. Long. 2.2 mm.; .09 inch. Hab.—Montana. Both speci-

mens are badly abraded, but what remains of scales seems to indicate that they are more dense and more closely adherent to the surface. I do not feel justified in considering it specifically distinct until increased and better material shall prove it to be so.

A. moleculus Casey.—Closely allied to *robustulus*, with which it agrees in form and vestiture, and from which it differs in the following characters: Beak shorter and relatively more robust; antennæ entirely testaceous, except the club, which is darker; second and third joints of funicle not elongate, equal, and together shorter than the following three joints; the head is more densely scaly, frontal fovea not well defined, elongate. Prothorax less closely punctured, punctures smaller; hind angles somewhat depressed; the femoral tooth is extremely small. Legs pitchy-black; tibiæ scarcely widened towards the tip and like the tarsi, paler. Long. 1.5—1.8 mm.; .06—.07 inch.

Hab.—District of Columbia, Maryland, Illinois, Wisconsin.

ungularis Group.

The three species constituting this group are readily distinguished by the 6-jointed funicle and the claws armed with a short, inconspicuous tooth; they are elongate in form; the elytra have a transverse denuded fascia.

They are easily distinguished as follows:

Beak long and slender, thighs toothed, pubescent.
Larger, femora feebly clavate, pubescence yellow..... **ungularis.**
Smaller, femora strongly clavate, pubescence white..... **floralis.**
Beak short and stout, thighs not toothed, squamous..... **nubilus.**

A. ungularis Lec.—Elongate, chestnut-brown, underside of trunk piceous, thinly clothed with coarse yellowish pubescence, which is more dense and squamiform on the thoracic side pieces. Beak: male shorter and more robust, feebly curved, naked without lustre, alutaceous with a fine stria each side from base to middle; female long and slender, shining, finely alutaceous, not striate; scrobes commencing about two-fifths from the apex; in both sexes there is a slight enlargement at the insertion of the antennæ. Antennæ stout, fuscous, scape short, first joint of funicle short, second slender and longer than the third, which is a little longer than the fourth, joints 4-6 rounded, club closely articulate, entirely pubescent. Eyes feebly convex. Head alutaceous, sparsely pubescent; frontal fovea small, elongate. Prothorax wider than long, narrowed from base to front, sides broadly rounded and scarcely constricted at the apex; base feebly emarginate each side; surface closely, deeply and rather coarsely punctured, each puncture bearing a yellow hair. Elytra elongate, nearly one-third wider at base than the prothorax; sides nearly straight for two-thirds their length, thence gradually rounded to apex; striæ fine, superficial, except the sutural one, which is more deeply impressed; punctures moderate, elongate, not very close; interspaces nearly flat, smooth, remotely punctulate; scutel densely pubescent; transverse fascia not very conspicuous, surrounded by a line of pubescence; under surface densely punctured; ventral segments subequal, fifth of ♂ shorter than

the fourth. Legs slender, thighs feebly clavate, all armed with a small tooth, which is almost obsolete on the hind pair; tibiæ almost equal in width; tarsi moderately slender, claws armed with a very small, but distinct, basal tooth. Long. 2.3—2.8 mm.; .09—.11 inch.

Hab.—District of Columbia, Florida, Michigan.

The prothorax is darker, even piceous, in some specimens.

A. floralis n. sp.—Smaller and narrower than the preceding, ferruginous to piceous and clothed with white, coarse pubescence. The beak is slender and nearly equal in both sexes, finely and remotely punctured and striolate, feebly curved; scrobes commencing about two-fifths (♂) or one-half (♀) the length from the buccal opening; scape of antennæ longer, second joint of funicle a little longer than the third. Eyes and head as in *ungularis*, front with a few rows of fine, remote punctures, each one bearing a short white hair, a straight line of white pubescence along the inner margin of the eyes. Prothorax less narrowed in front and not constricted at the apex; sides more strongly rounded; surface coarsely, but not densely punctured, pubescence more concentrated along the median line and on the sides. Elytra one-third wider at base than the prothorax; striæ wider, more deeply impressed; punctures larger, rounded; interspaces slightly convex, rugose; under surface as in *ungularis*. Legs stouter, femora more strongly clavate, all toothed; tibiæ shorter and stouter; the tarsi are broader and shorter, and the claws armed with a somewhat longer and acute tooth, than in that species. Long. 2.—2.5 mm; .08—.10 inch.

Hab.—Florida, North Carolina. Coll. E. A. Schwarz and H. Ulke.

A specimen in Mr. Ulke's collection, from North Carolina, is larger (2.5 mm.) than the average, more coarsely sculptured and of a pitchy black color with the pubescence very conspicuous; it does not appear to be distinct.

A. nubilus Lec.—Elongate elliptic, ferruginous to rufo-piceous and clothed with small, yellowish white scales intermixed with a fine, suberect pubescence. Beak short, robust and imperceptibly tapering from base to apex, more strongly curved near the base, finely punctured and obscurely striate; scrobes curved with the concavity upward, approximate underneath. Antennæ robust, rufo-testaceous, club dusky, inserted one-third (♂) or one-half (♀) from the apex; second joint of funicle scarcely longer than the third; joints 3–6 rounded. Eyes moderately convex, posterior margin free. Head remotely punctulate with a few hairs; front flattened, fovea variable, an obscure transverse impression above the eyes. Prothorax wider than long, moderately narrowed anteriorly, sides broadly rounded, scarcely constricted at the apex; surface coarsely, but not very closely punctured. Elytra wider at base than the prothorax, sides feebly rounded, gradually narrowed to and conjointly rounded at the tip; striæ wide, moderately impressed; punctures coarse, interspaces convex, rugulose; a broad, oblique stripe and declivity more densely scaly, suture darker; underside moderately punctured, thorax densely. Abdomen sparsely pubescent; last ventral segment longer than the preceding in both sexes and the pygidium but little exposed in the male and not at all in the female. Legs and tarsi moderately stout, thighs

feebly clavate, not toothed; tibiæ a trifle widened toward the apex, each tarsal joint with a few, white hairs arising near the apical extremity, claws armed with a very small, almost imperceptible tooth. Long. 1.8--2.2 mm.; .07--.09 inch.

Hab.—Florida, North Carolina.

The following variety deserves special mention: Larger and darker; frontal fovea sulciform, deeply impressed; the scaly vestiture more conspicuous; scutellum, scutellar and intra-humeral spots very densely scaly. Long. 2.7 mm.; .11 inch. Occurs in District of Columbia, Florida, Texas, Pennsylvania.

Subgenus Cnemocyllus.

Under this subgeneric name I have included all those species which have the posterior tibiæ dissimilar in the two sexes, those of the male being more or less curved, while in the female they are straight, or nearly so. This curvature varies greatly, being most marked in *ornatulus* and *figuratus*, and least in *ligatus*. The fifth ventral segment is more or less elongate, except in *subvittatus*, *ornatulus* and *figuratus*, and very long in *inermis*. The tarsi are never short and broad, but are very long and slender in a few species. The tooth of claw varies considerably in development. The form varies from oval to elongate, and the integument is clothed with scales, which, in most of the species, form lines or vittæ after a common pattern, as follows: A pale line on the fourth interspace commencing about the middle and variable in extent, another vitta on the sixth interspace commencing at the base and extending to about the middle; in addition to these there is in some a darker patch or fascia on the sides behind the middle. The prothorax is generally vittate; the funicle of the antennæ is either 6- or 7-jointed.

The species occur in the Western and Southern States, are closely related, and require great care to be distinguished. The following table, supplemented by the descriptions and figures given, will, however, enable the student to positively identify them.

Funicle 7-jointed.

Fifth ventral segment of male not, or but slightly elongate.

Larger, posterior tibiæ of ♂ feebly curved, claws armed with a long slender tooth. Plate vi, fig. 19.....**subvittatus.**

Smaller, posterior tibiæ of ♂ strongly curved, tarsi long and slender, claws moderately toothed.

Thorax shorter and more strongly narrowed anteriorly, tarsi as long as the tibiæ. Plate vi, figs. 20*a* and 20*b*.....**ornatulus.**

Thorax longer and less narrowed in front, tarsi shorter than the tibiæ. Plate vi, fig. 21*a*.....**figuratus.**

Fifth ventral segment of male very long, claws armed with a long tooth. Pl. vi, fig. 22*a*.....**inermis.**

Funicle 6-jointed, fifth ventral segment of ♂ elongate.
Scales white, or pale: vittæ, if any, not conspicuous, claws armed with a large tooth, approximate to its fellow.
Second joint of funicle elongate, longer than the third.
Larger, 3.5 mm.; elytra not vittate..... **Jacobinus.**
Smaller, scarcely exceeding 2.6 mm.
Scales smaller, elytra vittate..... **decipiens.**
Scales large, elytra not vittate..... **canus.**
Second joint of funicle not, or scarcely longer than the third.
Larger (2.0—2.3 mm.), sides more rounded, scales smaller..... **affinis.**
Smaller (1.5—1.7 mm.) and more narrow, scales larger..... **nanus.**
Scales more or less brown, conspicuously vittate with pale scales.
Larger, claws armed with a broad tooth, third joint of funicle longer than the fourth.
Sides of prothorax nearly straight behind, elytra wider at base than the former, hind tibiæ of male distinctly curved, tooth of claw moderately long and not obtuse. Plate vi, fig. 23*a*..... **elongatus.**
Prothorax rounded on the sides, elytra not wider at base than the former, hind tibiæ of male nearly straight, emarginate, tooth of claw short, obtuse. Plate vi, fig. 24*a*..... **ligatus.**
Smaller, claws armed with a long and slender tooth, third joint of funicle not longer than the fourth..... **lineatulus.**

A. subvittatus Lec. Plate vi, figs. 19, 19*a*.—Elongate-oval, pitchy-brown above densely clothed with elongate, brownish scales intermixed with white. Beak long, not very slender, feebly curved, median carina and stria each side well marked, striolate and punctured, punctures large and superficial. Antennæ slender, rufous, first joint of funicle long and slender, second and third joints slightly elongate, equal, and together not as long as the former, joints 4–7 rounded, outer ones not wider, clava darker, pubescent. Eyes feebly convex and somewhat free posteriorly. Head punctured, densely clothed with lanceolate scales, front flattened, fovea elongate. Prothorax a little wider than long, narrowed from base to apex, sides feebly rounded and scarcely constricted at the apex; surface coarsely and deeply punctured and clothed with brown, elongate-oval scales and three narrow lines of white scales. Elytra distinctly wider at the base than the prothorax; humeri rounded; sides nearly straight for one-half their length, thence gradually narrowed to apex; striæ impressed; punctures moderate, approximate; interspaces slightly convex, punctulate and slightly rugose, scutellum, scutellar line, fourth interspace from the middle, sixth from the base and to a variable extent, covered with whitish scales; a large denuded patch each side behind the middle; under surface clothed with coarse, whitish pubescence. Legs and tarsi long and slender, reddish; femora scarcely clavate, anterior feebly dentate; tibia slender, posterior of male curved in their distal half and slightly dilated at the tip, those of the female straight; tarsal claws divergent and armed with a long, slender tooth. Long. 2.8–3 mm.; .11–.12 inch.

Hab.—California. Coll. Dr. Horn.

The fifth ventral segment is not longer than the preceding, the pygidium exposed in both sexes; the tooth of claw is very slender and more conspicuous than in the next species.

A. ornatulus n. sp. Plate vi, figs. 20, 20*a*, 20*b*.—Elongate subovate, piceous, antennæ and legs reddish, densely clothed with broadly oval scales, white and brown on the upper surface and entirely white beneath. Beak rather long and slender, regularly curved and somewhat shining, punctured and substriate from base to middle with the median carina distinct. Antennæ slender, first and second joints of funicle long and slender, latter much longer than the third; following joints rounded, outer ones a little wider, club dark. Eyes moderately convex, placed more anteriorly on the head, than usual, posterior margin free. Head wide, short and deeply immersed into the thorax, punctured and clothed with large, elongate scales; front scarcely convex, fovea obsolete. Prothorax wider than long, moderately narrowed anteriorly, base nearly straight each side; regularly rounded from base to apex, feebly impressed in front; surface densely and coarsely punctured, punctures deep and concealed by the scales; disc brown, with a narrow median line, and on the sides pearly white, latter with a few, scattered, brownish scales. Elytra oval, scarcely wider at the base than the prothorax; sides moderately rounded from base to apex; striæ and punctures concealed by the scaly vestiture; interspaces wide, flat; large periscutellar space, somewhat heart-shaped, and a large, rounded blotch each side behind the middle, brown; rest of surface pearly white, intermixed with scattered, brown scales, especially on the declivity. Abdomen clothed with piliform scales; segments 3-5 about equal in length. Legs slender, clothed with white scales; thighs slender, anterior with a scarcely perceptible tooth; tibiæ straight, posterior of the male almost angularly curved near the distal extremity; tarsi very slender and as long as the tibiæ, first joint longer than the second (♂), or equal to it (♀); last joint very long, distal end and claws blackish, latter armed with a rather short and obtuse tooth. Long. 2.3 mm.; .09 inch.

Hab.—California.

A female specimen in Dr. Horn's and a male specimen in my collection. A very distinct species, not unlike dark colored specimens of *pauperculus*, from which, however, it is distinguished aside from structural differences by its bright ornamentation, more transverse thorax, elongate second joint of funicle, very long tarsi and short tooth of claw. For differentiation from *figuratus* the student is referred to that species.

A. figuratus n. sp. Plate vi, figs. 21, 21*a*.—Very similar in form, color and vestiture to the preceding, but a little larger, and the scales less closely applied to the derm, and therefore more easily removable; the beak a little longer and more robust at the base, with the sculpture more pronounced; the eyes are placed more laterally; the prothorax but little wider than long, with the punctures smaller and more crowded; the elytral striæ, denuded of the scaly vestiture, are fine, but well impressed, becoming wider and deeper near the base; the punctures small and closely approximate; interspaces nearly flat, except at the base, punctured and somewhat rugose; the coloration is almost identical, but less sharply defined, the broad white stripe dissolved into two vittæ. Legs a little darker, thighs infuscate about the middle; tibiæ longer, anterior more bisinuate internally and the posterior of male even more strongly curved than in that species; the tarsi are slender, and shorter than the tibiæ. Long. 2.5 mm.; .10 inch.

Hab.—California.

Three males are before me; one well-preserved specimen in Mr. Schwarz's collection and two abraded ones from Santa Monica, L. Cal., in mine. The fifth ventral of the male is a little longer than the fourth.

A. inermis Boh. Plate vi, fig. 22.—Elongate-oval, ferruginous, densely clothed above and beneath with large, broadly oval, white, or grayish white scales. Beak moderately long and slender, curved and scarcely pubescent; three elevated lines from base to middle, with corresponding striæ between; scaly at the base. Antennæ rather stout, second joint of funicle not longer than the third; club dusky. Eyes feebly convex, posterior margin slightly free. Head punctured and densely scaly, frontal fovea elongate. Prothorax longer than wide, narrowed in front; sides rounded, feebly constricted at the apex and transversely impressed behind the anterior margin, closely and rather finely punctured. Elytra elongate-oval, more than one-fourth wider at the base than the prothorax; sides feebly rounded; striæ impressed, punctures rather large, rounded and closely approximate; interspaces slightly convex. Legs and tarsi slender, femora feebly clavate, anterior with a small, scarcely perceptible tooth; tibiæ slender, posterior of male feebly curved, fifth ventral segment of male almost as long as the two preceding segments united. Long. 2.2—2.5 mm.; .09—.10 inch.

Hab.—California.

I am not at all certain about the identity of this species, as Le Conte describes the thighs as being unarmed. I have only four specimens before me, in all of which the tooth of the anterior pair is discernible, but it is quite possible that, on account of its small size, it had been overlooked by that author. Two specimens in Dr. Horn's collection have the upper surface somewhat mottled with brownish scales.

A. jacobinus n. sp.—Oblong-elliptic, piceous, antennæ and legs ferruginous, densely clothed above and beneath with moderately large, whitish scales. Beak not very slender, feebly but regularly curved, opaque (♂), or somewhat shining (♀), indistinctly carinate and striate; scrobes straight. Antennæ slender, inserted two-fifths (♂) or one-half (♀) from the apex, funicle 6-jointed, first joint not very robust, elongate; second joint longer than the third. Eyes feebly convex, scarcely free behind. Head wide, and like the beak at base, densely scaly, irregularly punctulate; frontal fovea small, punctiform. Prothorax a trifle wider than long, moderately narrowed in front, but scarcely constricted at the apex, sides nearly straight behind the middle, feebly emarginate each side at base; surface densely and rather coarsely punctured; scales more condensed along the middle and on the sides. Elytra a little wider at the base than the prothorax; sides nearly parallel for one-half their length, thence gradually rounded to apex, which is moderately dehiscent, striæ wide, impressed, punctures large, rounded, and not closely approximate; interspaces convex, rugulose; scales a little more condensed on the basal third of the sutural and sixth interspace; underside of body densely punctured. Legs moderately slender, femora not strongly clavate, anterior with a very small, acute tooth, middle and posterior mutic; tibiæ not very slender and rather short, anterior and mid-

dle bimarginate internally, posterior of male distinctly curved, of female nearly straight; pygidium freely exposed in the male, feebly so in the female. Long. 3–5 mm.; .14 inch.

Hab.—Colorado.

A male and female specimen in my collection only very recently received. This species resembles *canus* very closely in form and coloration; it differs, however, by its greater size, smaller and more densely placed scales, the elytra more gradually rounded to the apex, the pygidium more freely exposed, and the hind tibiæ of the male strongly curved; the fifth ventral segment is longer than the preceding in both sexes, especially the female.

A. decipiens Lec.—Elongate-oblong, pitchy-brown, antennæ and legs ferruginous, densely clothed above and beneath with large, oval, grayish white scales, which, however, on the abdomen become piliform. Beak long, curved and moderately slender, shining, rather coarsely punctured near the base, three ill-defined, elevated lines. Antennæ somewhat stout, second joint of funicle elongate, slender and longer than the third, which is a trifle longer than the fourth, club dusky. Eyes almost flat, posterior margin slightly free. Head convex, punctured and densely squamose; an impressed frontal line extending upon the base of the rostrum. Prothorax one-third wider than long, sides feebly rounded, subparallel behind, strongly narrowed and distinctly, though not suddenly constricted at the apex; surface densely, though not coarsely punctured, indistinctly trivittate. Elytra a little wider at the base than the prothorax, oblong-oval, almost parallel on the sides, gradually rounded to apex behind, coarsely striato-punctate, striæ broad and deep, punctures large, oblong and closely approximate; interspaces convex, roughened; with the scaly covering intact, the latter appear wide and flattened, and the striæ and punctures not entirely concealed. Legs moderate, femora feebly clavate, anterior feebly toothed; tibiæ slender, anterior and middle slightly bisinuate internally, posterior of male regularly, but not strongly curved; tarsi slender. Long. 2—2.2 mm.; .08—.09 inch.

Hab.—Texas, Kansas, Oregon, Washington.

The pygidium is more or less freely exposed, and the fifth ventral segment longer than the fourth in both sexes, though more markedly so in the male, while it is foveate in the female. In well-marked specimens a posterior pale vitta on the fourth and an anterior one on the sixth interspace, as well as a post-scutellar line are more conspicuous; the darker, lateral space is generally ill-defined.

A. canus Lec.—Closely allied to the preceding species; elliptic, pitchy-brown, densely clothed with very large, broadly oval, and uniformly white scales: it differs as follows: Beak more slender and shining, more finely sculptured, slightly widened and somewhat depressed at the apex. Prothorax but little wider than long, regularly rounded from base to apex, latter not constricted. Elytra more broadly rounded on the sides; striæ and punctures still coarser; punctures more transverse and very narrowly separate. Legs, especially the

tibiæ, a little stouter; posterior tibiæ of male feebly curved. Long. 2—2.6 mm.; .08—.10 inch.

Hab.—Arizona, California, Texas.

The pygidium is but little exposed in the male and entirely concealed in the female. The remarkably large scales appear, under a moderate magnifying power, slightly concave.

A. affinis Lec.—Of the same form and coloration as *canus*, but a trifle smaller; the second and third joints of funicle a trifle elongate, equal in length; the scales are smaller in size; tibiæ more slender, and the posterior of the male regularly curved. Long. 2—2.3 mm.; .08—.09 inch.

Hab.—Texas, Arizona, New Mexico, California.

The pygidium is more freely exposed in both sexes; fifth ventral segment markedly longer than the fourth, especially in the male.

A. nanus Lec.—Elongate, subparallel; black, legs rufous, clothed with rather large, grayish white scales. Beak long and stout, curved, shining, with several rows of punctures each side of the median carina, scaly at the base; scape and basal joint of funicle reddish, rest of antennæ darker, piceous, second and third joints of funicle somewhat elongate, equal in length. Eyes nearly flat—not at all free. Head convex, coarsely punctured and densely squamous, frontal fovea small. Prothorax a little wider than long, scarcely narrowed in front and not constricted at the apex; base bisinuate, sides feebly rounded; surface densely punctured and squamous. Elytra elongate, but little wider at the base than the prothorax, sides scarcely rounded, broadly rounded at the apex; striæ coarse, punctures large and rather remote; interspaces convex, rugulose. Legs moderately stout, thinly scaly; anterior femora more strongly clavate, middle and posterior scarcely at all; tibiæ slender, almost straight, posterior of male moderately and regularly curved; tarsi and claws as in the preceding. Long. 1.5—1.7 mm.; .06—.07 inch.

Hab.—Arizona, New Mexico.

The fifth ventral segment of male is scarcely one-half longer than the fourth and of about equal length in the female. The pygidium is freely exposed in the male and not at all in the female.

A. elongatus Lec. Plate vi, figs. 23, 23*a*.—Strongly elongate, nearly parallel, pitchy-brown, clothed with large, rounded, pale brown and whitish scales. Beak moderately long and slender, curved, subopaque and a little widened from base to apex; median carina distinct, substriate each side. Antennæ slender, rufo-testaceous, funicle 6-jointed, second and third joints subequal; joints 4-6 oblong, club darker. Eyes feebly convex, posterior margin free. Head slightly convex, punctured and scaly, front with impressed line. Prothorax convex, slightly narrowed in front, base bisinuate; sides nearly straight posteriorly, feebly rounded in front, apex scarcely constricted and transversely impressed behind the anterior margin; surface densely punctured, a median and lateral vittæ of pale scales. Elytra a little wider at the base than the prothorax, a trifle widened to behind the middle, sides nearly straight for two-thirds their length, thence narrowed to and broadly rounded at the tip; striæ wide and deep, more

so toward the base, punctures coarse, elongate, not very closely placed; interspaces somewhat convex, punctured and transversely strigose; the scales are predominantly white, condensed each side of the scutellum, along the base and on the sixth interspace from base to near the middle, the posterior denuded fascia almost reaches the suture, and is surrounded by a broad stripe of white scales, including a short white line on the fourth interspace. Legs slender, ferruginous, thighs feebly clavate, anterior armed with a small acute tooth; tibiæ stout, bisinuate internally and curved inward near the apex, posterior of male more strongly curved and somewhat enlarged at the apex; tarsi moderately stout, claws armed with a broad tooth. Long. 2.5—3 mm.; .10—.12 inch.

Hab.—District of Columbia, Illinois, Nevada, Florida, Georgia.

Last ventral segment of female foveate.

Dr. Horn, who, in this instance also, has kindly made the comparison with the type in the LeConte collection at Cambridge, has found the funicle to consist of only six joints and not seven, as erroneously stated by LeConte, and which had led me to doubt the identity of the present species with the one described by LeConte.

This species is very closely related to the following, with which it has heretofore been confounded in collections. A specimen from Jacksonville, Fla., in Mr. Schwarz's collection, I refer, with some doubt, to the present species; it has the beak a little shorter and stouter, the second joint of funicle a little shorter than the third, outer joints wider; the elytra a little wider at the base and not wider posteriorly, sides feebly rounded, punctures close set and somewhat transverse, interspaces more roughened, and the anterior femora more strongly clavate; it is entirely denuded of scales.

A. ligatus n. sp. Plate vi, figs. 24, 24*a*, 24*b*.—Very closely resembles *elongatus* in form, sculpture and coloration, and is distinguished from that species by the following characters: the second and third joints of the funicle are a little more slender and of nearly equal length; the prothorax more strongly rounded at the sides and more narrowed anteriorly. Elytra not wider at the base than the prothorax with the sides a little more rounded; the scales are of a more yellowish color instead of the white, and less easily removed, the markings less marked; the dark denuded fascia extends from the sides to about the fourth interspace; the tibiæ are more slender and the posterior of the male simply emarginate along the internal margin and entirely straight in the female. Long. 2.4–2.7 mm.; .10—.11 inch.

Hab.—Arizona. Collection of Dr. Horn.

The claws are armed with a rather short and obtuse tooth.

A. lineatulus n. sp. Plate vi, fig. 25.—Long elliptic, pitchy-brown, antennæ and legs testaceous, clothed with large, grayish or brown, closely adherent scales. Beak long and rather stout, curved, slightly widened and somewhat depressed toward the apex, punctured, scaly at the base, a median elevated line and stria each side from base to about the middle, apical half shining and remotely

punctured (♀); funicle 6-jointed, first joint elongate, second slender, longer than the third; joints 3-6 about equal, club darker. Eyes scarcely convex. Head convex, punctured, clothed with elongate scales, front sulcate. Prothorax wider than long, narrowed from the base, apex feebly constricted and slightly rounded on the sides; coarsely and rather densely punctured, each puncture concealed by a large, oval or rounded scale; a narrow median line, and a broad stripe each side of whitish scales. Elytra a little wider at the base than the prothorax, sides nearly parallel for one-half their length, thence very gradually narrowed to the apex; when viewed from above, a slight subhumeral tubercle on the ninth interspace is noticeable; striæ deep, punctures large, not very close, and not concealed by the scales, which are predominantly brownish in color; scutellum and short scutellar line, base, interrupted line on the fourth interspace commencing about the middle, another on the sixth from base to middle, of grayish white scales. Legs moderately slender, femora infuscate at middle, anterior moderately clavate and armed with a very small triangular tooth, middle and posterior more slender; tibiæ moderately stout, nearly straight; tarsi not slender, apical half of last joint and claws blackish, latter armed with a long, slender tooth, which is closely approximate and parallel with its fellow. Long. 2 mm.; .08 inch.

Hab.—Burnett County, Texas.

A unique female specimen in Mr. Schwarz's collection. Very distinct; differs from the two preceding species, to which it is most closely related, in form, and in the claws being armed with a long, slender tooth, in this it agrees with *subvittatus*, which it also resembles in form and markings, but differs by its very small size and the second joint of funicle longer than the third.

Subgenus **Anthonomochæta.**

Beak long and rather slender, curved and slightly widened beyond the insertion of the antennæ, pubescent; scrobes straight, directed against the eye. Antennæ slender, inserted about two-fifths from the gular opening, funicle 7-jointed. Eyes small, round and feebly convex. The front is somewhat flattened, with a round fovea concealed by pubescence. Prothorax a little wider than long, strongly narrowed in front and slightly constricted at the apex, base bisinuate. Elytra broadly ovate, a little longer than wide, suddenly and fully one-third wider at the base than the prothorax; humeri callous, prominent; regularly rounded on the sides from base to tip; striæ broad and deep, punctured; third and fourth ventral segments shorter than the others, fifth longer than the fourth in both sexes; pygidium exposed in the male, concealed in the female. Legs very slender, femora scarcely clavate and not toothed; tibiæ very slender, straight, apical armature very feebly developed; tarsi slender, claws

armed with a long tooth, approximate to its fellow; surface densely clothed with long, coarse pubescence, intermixed with stiff, erect bristles.

Aside from the vestiture, so unusual in the present tribe of rhynchophorous coleoptera, the present subgenus differs from Anthonomus proper by its rather small eyes and the feeble, tibial armature. It is represented by a single species.

A. heterogenus n. sp.—Robust, ovate, ferruginous to piceous, antennæ and legs rufous; pubescence ashy gray, concealing the sculpture; the erect bristles are arranged in a single row on each elytral interspace and also along the outer margin of the tibiæ, giving them a fimbriate appearance. Beak ferruginous, somewhat shining, punctured and indistinctly striate each side; first and second joints of funicle elongate, robust, latter longer than the third joint; outer joints wider; club dusky, long, elliptic, pubescent, and rather loosely articulate. Prothorax densely and finely punctured, underside punctured; abdomen less densely pubescent than the rest of the surface. Long. 2.2—2.7 mm.; .09—.11 inch.

Hab.—Arizona, Utah, Washington, Texas. Dr. Horn's and my own collection. Five specimens in all are before me.

Easily recognized by its coarse, hirsute appearance.

ANTHONOMOPSIS gen. nov.

I have established this genus on *Anth. mixtus* Lec., a pubescent species, with 6-jointed funicle and the claws armed with a short tooth. It differs from all others by the flattened abdomen, having the first and second segments conspicuously elongate and closely connate, the former being longer than the metasternum; segments 3–5 relatively short and about equal in length, the pygidium scarcely exposed at the tip in the male and entirely concealed in the female; all the tibiæ are unguiculate at the apex.

It is represented by a single species.

A. mixtus Lec. Plate vii, fig. 26.—Subovate, reddish, or pitchy-brown, and rather densely clothed with coarse, variegated pubescence. Beak long, not slender; punctured and striate from base to near the apex. Antennæ stout, fuscous, first joint of funicle rather long and stout, second a little longer than the third, outer joints wider. Eyes convex. Head punctured and pubescent, frontal fovea deep. Prothorax wider than long, narrowed from the base, sides feebly rounded and constricted behind the apical margin; surface densely and coarsely punctured. Elytra feebly rounded on the sides and widened to behind the middle, rather rapidly narrowed to and conjointly rounded at the tip; about one-third, and rather suddenly, wider at the base than the prothorax; striæ and punctures coarser towards the base, latter closely approximate; interspaces wide, nearly flat, and almost smooth, with a few irregular punctures; humeral and a large discal spot behind the middle, rufous; a transverse fascia posteriorly on the dis-

cal spot and apex of dense, whitish pubescence; underside densely punctured and coarsely pubescent. Legs slender, ferruginous; thighs feebly clavate, infuscate about the middle, all armed with a sharp tooth; tibiæ slender, nearly straight, all armed with a small hook at the apex; tarsi moderate, first and second joints slightly elongate, equal; third feebly bilobed, lobes small; claws divergent, armed with a small, acute tooth. Long. 2.5—3.2 mm.; .10—.13 inch.

Hab.—Pennsylvania, Texas, Iowa, Missouri.

The pubescence is easily rubbed off. Two specimens taken early in the Spring by Dr. Hamilton, and kindly sent me for examination, are entirely deprived of pubescence, probably due to hibernation, the occurrence of which must be rare among the members of the present tribe.

PSEUDANTHONOMUS gen. nov.

Beak rather stout, moderately long and curved; scrobes oblique, directed beneath, rarely (*cratægi*, *validus*) against the lower extremity of the eye. Antennæ not very slender, inserted two-fifths (♂) or one-half (♀) from the apex; scape incrassate at its distal extremity; funicle 6-, rarely (*relictus*) 5-jointed; fourth joint (third, *relictus*) shorter and smaller than either of the preceding or following joints (except *brunneus*, *parvulus*); club loosely articulate, pubescent. Eyes variable. Head subspherical, punctured. Prothorax wider than long, bisinuate at base, narrowed in front and constricted at the apex. Elytra transversely impressed behind the base; striæ and punctures coarse and deep; scutellum densely pubescent; prosternum short in front of the coxæ; mesosternum narrowed behind; metasternum moderately long; ventral segments nearly equal, fifth a little longer than the fourth in the female; pygidium exposed, middle coxæ narrowly, posterior not very widely separated. Legs slender, femora feebly clavate, all toothed; tibiæ slender, anterior and middle unguiculate, posterior mucronate at apex; tarsi slender, claws armed with a long and slender tooth.

The species are all of a rufo-testaceous or ferruginous color and pubescent, both on the upper and under surface, without any scales. In all, except *facetus*, the first and second, third and fourth, fifth and sixth elytral striæ become confluent at the base, the interspaces thus enclosed do not reach the basal margin, the third interspace becomes wider and more prominent at the anterior extremity (except *facetus*).

The species resemble each other very closely, are difficult to distinguish, and are, with the exception of *cratægi* and *incipiens*, represented by a single, or but a few specimens.

They are to be distinguished as follows:

Funicle 6-jointed.
Second joint of funicle elongate, longer than the third, fourth joint smaller.
Scrobes scarcely oblique, impinging against the inferior extremity of the eye; elytra wider at the base than the prothorax.
Pubescence long, yellow and condensed in patches or bands on the upper surface; beak longer..... **cratægi.**
Pubescence short, whitish, equally distributed: beak shorter... **validus.**
Scrobes very oblique, directed beneath at a distance from the eyes; elytra scarcely wider at the base than the prothorax. Plate vii, fig. 27. **incipiens.**
Second and third joints of funicle equal, or nearly so.
More robust; elytra suddenly wider at base, fourth joint of funicle small.
Alternate elytral interspaces narrow..... **seriesetosus.**
Interspaces equal, or nearly so.
Pubescence dense, coarse..... **tomentosulus.**
Pubescence fine, inconspicuous..... **facetus.**
Elongate species.
Fourth joint of funicle shorter than the others.
Larger; elytra scarcely wider at base than the prothorax, latter not strongly rounded on the sides..... **longulus.**
Smaller: elytra wider at base than the prothorax, latter strongly rounded on the sides..... **rufulus.**
Joints 4-6 of funicle equal.
Larger; eyes very convex; thorax very finely and densely punctured. **brunneus.**
Smaller; eyes feebly convex; thoracic punctures small and more remote. **parvulus.**
Funicle 5-jointed. Plate vii, fig. 28..... **relictus.**

P. cratægi Walsh.—Elongate-oval, ferruginous, with a rather dull lustre, and clothed with long, yellowish pubescence. Beak not very slender, punctured, and obscurely striate; scrobes scarcely oblique, impinging against the inferior margin of, and extending immediately below, the eyes, which are rather convex. Antennæ: scape directed beneath the rostrum during repose, rather suddenly incrassate at its distal end; first joint of funicle stout, elongate, second long and slender, longer than the third joint; fourth joint shorter than either of the others; club darker. Head somewhat conical, convex, punctured and finely rugose; occiput thinly, interocular space densely clothed, with long, yellow pubescence: transversely impressed above the eyes; frontal fovea elongate. Prothorax wider than long, sides broadly rounded, not strongly narrowed in front, broadly but feebly constricted at the apex; surface coarsely and rather closely punctured; pubescence condensed along the entire median line. Elytra wider at base than the prothorax; humeri rounded; sides slightly rounded, more strongly so towards the apex; striæ wide, deeply impressed, more so towards the base; first and second, third and fourth, fifth and sixth striæ confluent at the base; punctures large, deep, approximate; interspaces convex, rugose, third widened and somewhat protuberant at the base; pubescence condensed in small spots, patches or subtransverse lines; under surface punctured, pectus more densely, abdomen very sparsely and finely pubescent. Legs slender, thighs feebly clavate, armed with a broad, triangular tooth; tibiæ slender, scarcely wider at

the apex, anterior and middle feebly bisinuate along the internal margin. Long. 2.5—2.8 mm.; .10—.11 inch.

Hab.—Canada, Pennsylvania, District of Columbia, Illinois, Wisconsin, Michigan.

P. validus n. sp.—Oblong-oval, rufo-testaceous, a little more robust and more shining than the preceding, thinly clothed with fine, pale yellowish or whitish pubescence. Beak rather robust, moderately long, curved, somewhat shining, punctured and substriate, scarcely pubescent; scrobes more oblique than in the preceding, scarcely impinging against the lower margin of the eyes. Antennæ not slender; first joint of funicle robust and rather short; second joint not slender, longer than the third; fourth joint very short. Eyes convex. Head punctured and pubescent, more so on the front and between the eyes; frontal fovea elongate, not sharply defined. Prothorax one-half wider than long, strongly narrowed anteriorly and broadly constricted at the apex, rounded on the sides; surface densely and deeply punctured; pubescence condensed along the median line from the base to about the middle. Elytra oval, nearly one-third, and rather suddenly wider at the base than the prothorax; humeri rounded; sides rather strongly rounded towards the tip; striæ wide, impressed; punctures rather large, transverse and subconfluent; interspaces convex, shining, and somewhat rugose, alternate ones a trifle wider, especially noticeable toward the base; pubescence appears to be arranged in three irregular rows on each interspace, not condensed in patches or lines. Legs as in *cratægi*, but the femoral tooth is subspiniform, longer; the tibiæ very slender, longer, not widened towards the tip. Long. 2.2—2.7 mm.; .09—.11 inch.

Hab.—Nebraska, Colorado, Canada, New Mexico.

Four specimens are before me, one from each of the above localities. Coll. Dr. Horn and E. A. Schwarz; resembles *A. confusus*, but differs sufficiently in generic characters to require further reference.

P. incipiens n. sp. Plate vii, fig. 27.—Elongate subovate, ferruginous; antennæ and legs paler; clothed with yellowish gray pubescence. Beak stout, slightly widened from base to apex, coarsely punctured and pubescent at the base, median carina obsolete; scrobes very oblique and passing beneath at a distance from the eyes. Antennæ rather stout; first joint of funicle robust, second long, slender, equal in length to the former and much longer than the third joint, which is oblong and a little longer than the fourth, which is very short; joints 5–6 a little longer, rounded; club darker, loosely articulate. Eyes convex. Head conical, punctured; front flattened, pubescent, fovea elongate. Prothorax a little wider than long, strongly narrowed in front and distinctly constricted at the apex; sides rounded; surface densely and deeply punctured, each puncture bearing a short yellowish hair. Elytra oblong, a little wider at the base than the prothorax; humeri rounded, sides almost straight, nearly parallel, very little wider behind, rapidly narrowed to and conjointly rounded at the tip; striæ broad, impressed, deeper towards the base, straight; punctures large, closely approximate, a little smaller on the sides; interspaces moderately convex, more so towards the base, punctulate, rugulose; first and second, third and fourth, fifth and sixth striæ confluent at the base, their corresponding interspaces not reaching the anterior margin; third interspace wider and more prominent at the base;

under surface punctured, thinly pubescent. Legs sparsely pubescent, thighs feebly clavate, armed with a sharp, triangular tooth, smaller on the hind pair; tibiæ a little wider toward the apex, anterior and middle curved near the base and feebly biemarginate internally, posterior straight. Long. 2.5–2.8 mm.; .10—.11 inch

Hab.—Pennsylvania, District of Columbia, Canada, New York, Michigan.

This species has heretofore been confounded in collections with *P. crataegi*, to which, indeed, it bears a close resemblance, but aside from the difference in the direction of the scrobes it differs by its darker color and shorter and evenly distributed pubescence, which is scarcely yellow.

P. seriesetosus n. sp.—Oval, of the same color, and similarly pubescent as *validus*, from which it differs in the following characters: Beak stouter and shorter (♂), densely punctured and finely striate, second and third joints of funicle elongate, equal, third joint longer than the fifth or sixth, fourth very short. Head a little more elongate and somewhat constricted behind the strongly convex eyes; frontal sulcus long, deep and linear. Prothorax about one-third wider than long, median pubescent line narrow, entire, or nearly so. Elytra rounded on the sides and gradually narrowed from base to apex, the fourth, sixth and eighth interspaces are narrower in their whole extent than the adjacent ones; pectus more densely pubescent; tibiæ stouter, a little shorter and wider towards the apex. Long. 2.3 mm.; .09 inch.

A unique male specimen from Detroit, Mich., in Mr. Schwarz's collection.

P. tomentosulus n. sp.—Robust, subovate, ferruginous; antennæ and legs paler, rather densely clothed with long, grayish white pubescence. Beak distinctly carinate and striate near the base. Antennæ as in the last species, but a trifle more slender. Eyes feebly convex. Head wide, punctured and pubescent, transversely impressed behind the eyes, front not foveate. Prothorax a little wider than long, sides rounded, narrowed in front, not constricted at the apex; surface densely, coarsely and deeply punctured. Elytra wider at base than the prothorax, humeri rounded, transverse impression obsolete; sides moderately rounded from base to apex, coarsely striate and punctured on the disc, less so on the sides and declivity; punctures closely set; interspaces equal, slightly convex, irregularly punctured, rugulose; pubescence not arranged in rows, irregular and directed transversely; underside punctured and pubescent; femora armed with a small, acute tooth; tibiæ moderately slender, anterior and middle widened toward the apex and feebly bisinuate along the inner margin. Long. 2.4 mm.; .10 inch.

Hab.—Texas.

A female specimen in Mr. Ulke's collection. Distinguished from *seriesetosus* by the equal elytral interspaces, feebly convex eyes and the front not foveate; from *facetus* by the dense, coarse pubescence, larger size, dull lustre and confluent elytral striæ.

P. facetus n. sp.—Elongate subovate, rufo-testaceous, shining; very thinly clothed with fine, whitish pubescence. Beak robust, finely punctured, gradually widened from base to apex; scrobes very oblique. Antennæ as in *tomentosulus*; insertion visible from above. Eyes convex. Head convex, punctulate and sparsely pubescent, with a row of hairs along the inner margin of the eyes, transversely impressed behind the eyes, frontal fovea small, rounded. Prothorax wider than long, strongly rounded on the sides and broadly constricted at the apex; surface coarsely, but not closely punctured. Elytra rather suddenly and about one-fourth wider at the base than the prothorax, humeri rounded, wider behind the middle, with the sides nearly straight, and gradually narrowed to and separately rounded at tip; striæ curved, wide, deeply impressed, especially on the disc and towards the base, not confluent at their anterior extremity; punctures large, rounded and deep, especially on the disc; interspaces narrow and convex at the base, becoming wider and more flattened posteriorly, nearly smooth, each with two irregular rows of piliferous punctures, third interspace not widened at base. Legs and tarsi slender, femoral tooth small, triangular. Long. scarcely 2 mm.; .07 inch.

Hab.—Lincoln, Neb.

A single male specimen from the above locality in my collection. Easily recognized by its shining surface, very sparse pubescence, all the interspaces narrowed anteriorly and the striæ not confluent at the base.

P. longulus n. sp.—Elongate, ferruginous, dull, sparsely clothed with yellowish pubescence. Beak stout, scarcely wider at the apex, densely punctured with a median elevated line and stria each side, extending from the base to about the middle; scrobes less oblique, directed immediately beneath the eyes. Antennæ moderately stout, second and third joints of funicle subequal, fourth a little shorter than the fifth. Eyes convex. Head convex, punctured and pubescent, more densely between the eyes, transverse impression obscure; frontal fovea small, round. Prothorax wider than long, less strongly narrowed in front, broadly rounded on the sides, apex broadly and distinctly constricted; surface densely punctured, punctures moderately large, pubescence somewhat condensed on the sides and along the median line. Elytra elongate, a little wider at the base than the prothorax and separately rounded; sides nearly straight, subparallel for three-fifths their length, thence gradually narrowed to and somewhat compressed near the tip, which is dehiscent; striæ straight, moderately wide and impressed, punctures rather large and approximate; interspaces convex, equal in width or nearly so, third a little wider and more prominent anteriorly, rugose, each biseriately punctured, pubescence condensed in irregular spots, underside punctured; abdomen clothed with white pubescence. Legs slender, femoral tooth distinct on all; tibiæ slender, nearly straight. Long. 2.5 mm.; .10 inch.

Hab.—District of Columbia, North Carolina.

Two males. Coll. Dr. Horn and E. A. Schwarz. Distinguished by its elongate form from the preceding species.

P. rufulus n. sp.—Smaller and narrower than the preceding, almost parallel; rufous, somewhat shining, thinly clothed with very fine, whitish pubescence. Beak robust, shining, sparsely punctured and pubescent, obscurely striate

from base to middle; scrobes directed immediately beneath the eyes. Antennæ as in the preceding. Eyes moderately convex. Head remotely punctulate and sparsely pubescent, obscurely impressed transversely; frontal fovea small. Prothorax nearly twice as wide at the middle as long, slightly narrowed in front and scarcely constricted at the apex; sides strongly rounded about the middle; surface punctured, punctures small and rather remote. Elytra about one-fourth wider at the base than the prothorax; humeri rounded; sides straight and nearly parallel for two-thirds their length, thence rounded to apex, transverse impression behind the base distinct; striæ slightly curved, wide and deeply impressed; punctures very large, round and wider than the interspaces on the disc, becoming smaller towards the circumference, narrowly separated or subconfluent; interspaces moderately convex, rugulose; underside rather densely punctured; side pieces of thorax more densely clothed with very fine, white pubescence; abdomen and legs nearly glabrous; femora slender, armed with a very small, acute tooth; tibiæ rather stout, widened from base to apex. Long. 2 mm.; .08 inch.

Hab.—District of Columbia.

Two specimens in the collection of Mr. E. A. Schwarz. A very distinct species and more nearly parallel than any other in this genus.

P. brunneus n. sp.—Similar in form and coloration to *longulus*, but larger, very thinly clothed with short, whitish pubescence. Beak a little longer than the prothorax, rather stout, finely punctato-striolate, slightly widened at the apex, median elevated line obsolete, not pubescent; scrobes directed immediately beneath the eyes, which are oval, convex, free at their inner and posterior margin. Antennæ moderately slender, first joint of funicle long, stout; second about half as long as the former and a little longer than the third, which is a little longer than the three following joints, which are equal or nearly so. Prothorax wider than long; sides regularly rounded, broadly and rather sharply constricted at the apex; base bisinuate; surface finely and densely punctured, with a short, smooth dorsal line at the base; pubescence not condensed, inconspicuous. Elytra one-fourth wider at the base than the prothorax, oblong; humeri rounded; sides feebly rounded; striæ broad and deep, scarcely curved, confluent at base, punctures moderately long, subconfluent; interspaces convex, rugulose; third widened and more prominent at base; underside punctured and thinly pubescent. Legs less slender than in *longulus*; femoral tooth acute, triangular. Long. 3 mm.; .12 inch.

Hab.—New Mexico.

One specimen (♂) in my collection.

P. parvulus n. sp.—Similar in form, but smaller than *brunneus*, more shining with the pubescence scarcely more obvious. Antennæ slender, joints 4–6 equal in length, outer ones a little wider; the beak is rather slender (♀), shining, punctured, especially towards the base. Eyes less convex, more rounded and not free along the inner margin. Head sparsely punctured and pubescent. Prothorax wider than long, moderately narrowed in front and strongly constricted at the apex; sides rounded; surface less finely punctured than in the preceding. Elytra oblong, nearly one-third wider at the base than the prothorax, and the humeri less rounded; a little wider behind and feebly rounded on the sides, coarsely striate and punctured, striæ slightly curved, confluent at base,

punctures large, rounded, subconfluent on the disc; interspaces convex, narrower at the base, rugulose; third as usual, more prominent anteriorly; femora and tibiæ slender, former armed with a small, acute tooth. Long. 2.2 mm.; .09 inch.

Hab.—Illinois.

A single female specimen is before me. It is very closely related to *brunneus*, with which it agrees in the formation of the antennæ, but differs in size, the less convex eyes and the more coarsely punctured prothorax; the elytral punctures, also, are larger, and the interspaces more shining.

P. relictus n. sp. Plate vii, fig. 28.—Elongate, subovate, brown, clothed with coarse, yellowish gray pubescence. Beak moderately robust, widened from base to apex, punctured and feebly bistriate from base to middle; scrobes directed at a distance beneath the eyes. Antennæ moderately stout, funicle 5-jointed; first joint long, robust; second a little shorter, longer than the third, which is the shortest, fourth and fifth joints nearly equal, a little wider. Eyes scarcely convex, rather widely separated above. Head coarsely punctured, front flattened, fovea obsolete. Prothorax wider than long, narrowed in front, broadly but feebly constricted at the apex; sides well rounded behind the constriction; surface coarsely and closely punctured. Elytra elongate, wider behind, but little wider at the base than the prothorax; humeri rounded, coarsely striate and punctured, especially near the base; third interspace conspicuously widened at its basal extremity; interspaces nearly flat, except near the base, roughened and each with several irregular rows of punctures; underside finely and remotely punctured, and rather sparsely pubescent. Legs moderately slender, dark testaceous, femora infuscate about the middle, feebly clavate, anterior thighs armed with a moderately large, subspiniform tooth; tooth of middle and posterior thighs smaller; tibiæ and tarsi slender. Long. 2 mm.; .08 inch.

Hab.—Pennsylvania.

A unique ♂ taken by me some years ago. The occurrence of 5-jointed funicle in the present genus is certainly remarkable. In general appearance the species resembles *incipiens*; the color is darker than in any other species.

NEOMASTIX gen. nov.

This new genus is established upon two small species from the Atlantic States, differing from Anthonomus in the 5-jointed funicle and the broadly ovate, antennal club.

Beak long, not very slender, punctured and striate; scrobes commencing near the middle and directed against the lower segment of the eyes. Antennæ slender, scape straight, moderately incrassate at its distal end; funicle 5-jointed, first joint long and robust, joints 2-5 nearly equal, outer joints a little wider, clava broadly oval, closely articulate, basal joint shining. Eyes moderately convex and slightly

free behind, somewhat approximate upon the front; frontal fovea obsolete. Prothorax wider than long, narrowed in front; apex broadly, but not strongly constricted; surface punctured; elytra wider at the base than the prothorax, rounded on the sides, strongly convex on the declivity, coarsely striate and punctured; first and second ventral segments moderately long; third to fifth short, equal; fifth broadly emarginate in the male; pygidium freely exposed and slightly inflexed in the male, but slightly visible in the female. Legs not very slender; thighs feebly clavate, not toothed; tibiæ nearly straight, anterior and middle unguiculate, posterior mucronate at apex; tarsi rather stout, first and second joints equal, not longer than wide; third joint broadly bilobed, fourth moderately long; claws armed with a sharp and rather long tooth.

Represented by two species:

Dark piceous, prothorax less coarsely and less densely punctured, without median elevated line..... **solidaginis.**

Reddish, prothorax more coarsely and more closely punctured with a median, elevated line..... **punctatulus.**

N. solidaginis n. sp. Plate vii, fig. 29.—Oval, moderately robust; piceous, clothed with whitish, suberect pubescence. Beak feebly striate, punctured and pubescent. Eyes moderately convex, posterior margin rather free. Head convex, remotely punctured and pubescent, with a feeble transverse impression above the eyes. Prothorax more than one half wider than long, narrowed in front, feebly but broadly constricted at the apex, biemarginate at the base; sides feebly rounded behind the middle; surface rather finely and not closely punctured. Elytra oval, wider than the prothorax at its base; humeri prominent, rounded; striæ moderately deep, punctures rather large and close set; interspaces convex, finely and remotely punctulate; underside rather coarsely punctured, with the pubescence a little longer than above. Long. 1.5 mm.: .06 inch.

Hab.—Pennsylvania (Hazleton), Massachusetts (Ulke), Virginia, Maryland (E. A. Schwarz).

I have taken my specimens late in the fall on the deflorescent flower heads of *Solidago* species. Some specimens are less darkly colored.

N. punctatulus n. sp.—Oval, robust, reddish brown, thinly clothed with whitish pubescence. Beak punctured, deeply striate, pubescent. Eyes moderately convex. Head pubescent, remotely punctured, front transversely impressed above the eyes. Prothorax nearly twice as wide as long, moderately narrowed in front, broadly and distinctly constricted behind the apical margin; surface coarsely and rather closely punctured, an elevated dorsal line extending from the base to about the middle, more or less distinct. Elytra oval, humeri rounded, prominent; striæ deep, wide, coarsely and closely punctured; interspaces convex, punctulate; underside punctured. Long. 1.6 mm.; .06 inch.

Hab.—Florida. Coll. E. A. Schwarz and H. Ulke.

A little larger and more robust than the preceding; prothorax more distinctly constricted behind the apical margin, and, like the elytra, more coarsely punctured. More material from intermediate points may prove this to be a mere variety of the former.

CHELONYCHUS gen. nov.

Beak as long as the head and prothorax, not very slender, striate; scrobes straight, commencing about the middle of the rostrum and attaining the eyes; funicle of antennæ 7-jointed; first joint elongate, not very stout; second joint a little longer than the third; joints 3–7 rounded, outer ones scarcely wider; club suboval, not closely articulate, pubescent; front foveate. Prothorax wider than long, narrowed in front, base feebly biemarginate. Elytra a little wider at the base than the prothorax, slightly wider behind the middle and strongly convex on the declivity; coarsely striate and punctured; mesosternum triangular between the coxæ, declivous in front, obtuse behind; metasternum short; ventral segments subequal, first and second connate, third and fourth equal, fifth as long as the fourth in the male; pygidium freely exposed in both sexes. Legs long and slender; femora moderately clavate, toothed; tibiæ slender, anterior and middle unguiculate, posterior mucronate at apex; tarsi slender, third joint deeply bilobed; claws long and slender, divaricate, and strongly flexed with a small, acute tooth at the base.

The type and only representative of this genus is a small, black species, clothed with whitish scales and intermixed with a fine, semi-erect pubescence, resembling, in this respect, *Anth. robustulus*, but less robust and readily distinguished by the long and flexed claws armed with a small basal tooth.

C. longipes n. sp. Plate vii, figs. 30, 30*a*, 30*b*.—Oblong-oval; the scaly vestiture not very dense. Beak finely striolate and striate each side; the eyes are feebly convex and not free behind. Head convex, punctured and pubescent. Prothorax coarsely and closely punctured, and broadly rounded on the sides. Elytra feebly rounded on the sides; punctures large, partially concealed by the scales and rather remotely placed; each elytral interspace with a row of white suberect hairs; the femoral tooth is quite distinct on all. Long. 1.5–2 mm. .06–.08 inch.

Hab.—Yreka, Cal. (Dr. Horn); Minnesota, Colorado (H. Ulke).

NANOPS gen. nov.

The type of this new genus is a small, narrow insect, resembling, in form and size, *A. (Chemocyllus) nanus* Lec. Beak as long as the prothorax, robust, cylindrical, curved; scrobes commencing about

the middle and reaching the eyes. Antennæ robust, inserted about the middle of the rostrum; scape short, incrassate towards the distal end; funicle 6-jointed, first joint long and stout, the second a little longer than the third, club ovate, rather loosely articulate and pubescent. Eyes large, round and flattened, somewhat approximate upon the front, which is finely sulcate. Prothorax wider than long, scarcely narrower in front than at the base, rounded on the sides; base feebly bisinuate. Elytra scarcely wider at the base than the prothorax, elongate and a trifle wider behind the middle; striæ impressed, punctures moderate and rather remote; mesosternum almost parallel between the coxæ; metasternum rather short, scarcely as long as the first ventral segment at middle; first and second segment connate, former a little longer than the latter, third and fourth gradually shorter, fifth as long as the fourth in the male; pygidium fully (♂), or partially (♀) exposed. Legs rather short and stout; femora moderately clavate, not toothed; tibiæ rather short, widened from base to apex, all unguiculate at the apex; tarsi moderately stout; first and second joints equal, not elongate; third joint broadly bilobed; claws armed with a short basal tooth.

The vestiture consists of fine pubescence; but one species is known to me.

N. schwarzii n. sp. Plate v, fig. 31.—I have but little to add to the above generic description. Elongate, subparallel; pitchy brown, sparsely clothed with rather long, white pubescence, which, on the elytral interspaces, arises from a single row of fine punctures; the beak is alutaceous, neither punctured nor striate. Head impunctured, alutaceous; the prothorax is moderately and not closely punctured. Elytra a little darker along the suture. Long. 1.4 mm.; .56 inch.

Hab.—Florida. Coll. E. A. Schwarz, H. Ulke and F. Bowditch.

It gives me pleasure to dedicate this species to my friend, Mr. E. A. Schwarz, of Washington, D. C.

EPIMECHUS gen. nov.

Beak long, cylindrical and curved; scrobes commencing about the middle of the rostrum, directed against the lower segment of the eyes, which are more or less flattened. Antennæ rather slender; funicle 6- or 7-jointed, front with a linear impression. Prothorax wider than long, narrowed in front, base bisinuate. Elytra wider at the base than the prothorax, elongate, striate and punctured; underside as in *Anthonomus*. The pygidium is entirely uncovered

in the male (except *nevadicus*) and concealed in the female; the tibiæ are strongly armed at the apex; claws simple, divaricate.

The genus differs from *Anthonomus* by the simple, divaricate claws. The species are elongate-oval in form and rather convex; they are easily distinguished as follows:

Funicle of antennæ 7-jointed.
Pubescent, femora mutic ..... **mimicus**.
Squamous species.
Thorax trivittate, hind tibiæ curved ..... **curvipes**.
Thorax univittate, hind tibiæ straight ..... **soriculus**.
Funicle of antennæ 6-jointed.
Thinly clothed with squamiform pubescence ..... **adspersus**.
Densely scaly ..... **nevadicus**.

E. mimicus n. sp.—Elongate-oval, black, with dull lustre, very sparsely clothed with short whitish pubescence, which is a little coarser and longer on the thoracic side pieces. Beak about as long as the head and prothorax, moderately slender, curved and subdepressed towards the apex; finely punctured and striolate on the sides. Antennæ dark piceous, moderately slender; scape rather short, strongly incrassate and curved at its distal extremity; funicle 7-jointed, first joint moderately elongate and not very stout, second joint slender, longer than the third; joints 3–7 rounded, gradually wider; clava thinly pubescent and rather loosely articulate. Eyes large, flattened, somewhat approximate upon the front with the posterior margin rather free. Head convex, finely alutaceous, with a few remote, superficial punctures; frontal fovea large and well impressed. Prothorax wider than long, strongly narrowed in front, base bisinuate; sides rounded from the base, apex feebly constricted; surface coarsely, but not closely punctured. Elytra oblong, fully one-third and rather suddenly wider at the base than the prothorax; sides nearly parallel for more than one-half their length, thence gradually rounded to the apex; striæ wide, impressed; punctures moderately large and rather closely approximate; interspaces slightly convex, rugulose, each with a row of fine, remote punctures, bearing a fine, short hair; underside punctured; ventral segments short, first and second separately less than one-half longer than either of the three following, which are short and about equal in length (♂); pygidium fully exposed, convex, punctured. Legs rather slender, thighs feebly clavate not toothed; tibiæ slender, nearly straight and parallel, with the armature well marked; tarsi slender, third joint feebly bilobed; claws slender, divaricate and simple. Long. 2.8 mm.; .11 inch.

Hab.—California.

A unique male specimen in Mr. Ulke's collection is before me. It is labeled "*A. morulus* Lec.," to which, indeed, it has the greatest resemblance, and from which it can only be distinguished by the simple claws. From *E. adspersus*, which it also resembles in form and general appearance, it is distinguished by its larger size, finer pubescence and 7-jointed funicle.

E. curvipes n. sp. Plate v, fig. 32.—Elongate-oval, black, not densely, clothed with rather large white scales. Beak moderately long and slender, regularly curved, shining, punctured with an indistinct stria each side. Antennæ slender, dark piceous; scape straight, only moderately thickened at the apex; funicle 7-jointed, first joint as long as the three following united, second scarcely longer than the third; three outer joints a little longer and wider; club not closely articulate. Eyes as in the preceding. Head moderately convex and rather densely clothed with scales; front sulcate. Prothorax wider than long, narrowed in front, broadly rounded on the sides and scarcely constricted at the apex; base very feebly biemarginate; surface densely and coarsely punctured; scales large, more condensed on the sides and along the median line. Elytra about one-fourth wider at the base than the prothorax; humeri rounded, narrowly wider behind; striæ impressed, punctures moderately large and rather closely set; interspaces moderately convex; scales somewhat condensed on the fourth and sixth interspaces, an ill-defined, subdenuded patch each side behind the middle; underside punctured; thorax rather densely scaly, abdomen clothed with coarse pubescence; ventral segments similar to *mimicus*, but the fifth ventral segment is nearly twice as long as the fourth and the pygidium only partially uncovered in the male. Legs rather slender, squamous; femora feebly clavate, all armed with an acute tooth, which becomes almost obsolete on the hind pair; tibiæ slender, anterior and middle feebly curved, slightly biemarginate internally and strongly unguiculate at apex, posterior strongly curved in both sexes, apical mucro long and slender; tarsi as in *mimicus*, Long. 2 mm.; .08 inch.

Hab.—Nevada, New Mexico.

Four specimens; coll. Dr. Horn, E. A. Schwarz and H. Ulke. Distinguished by its simple claws and strongly curved posterior tibiæ; the latter character might give rise to its being referred to the subgenus Cnemocyllus; examination of the claws, however, will prevent such a mistake.

E. sericulus n. sp.—Closely allied to the preceding, with which it agrees in form and coloration of integument, but is a little larger. It differs as follows: With the exception of the head, vittæ and scutellum, the upper surface is thinly clothed with small, semi-transparent scales, under side densely scaly. Beak longer than head and prothorax, slender, finely carinate, carina extending from the frontal fovea to about the middle of the beak; first joint of funicle less elongate, shorter than the three following joints. Prothorax with a narrow, entire median vitta of large white scales; sides underneath densely clothed with large white scales, which, however, do not extend upon the upper surface. Elytra rather finely striate and punctured; scutellum white, a basal vitta on the sixth and a short one about the middle of the fourth interspace of large white scales; the tibiæ are a trifle more slender, anterior and middle nearly straight, scarcely marginate internally, with the apical hook less prominent; the posterior tibiæ rectangular and the apical mucro is small. Long. 2.5 mm.; .10 inch.

Hab.—Los Angeles, Cal.

A unique ♀ of this very distinct and pretty species in the collec-

tion of Mr. E. A. Schwarz. The sharply defined, narrow, thoracic and elytral vittæ, give this insect a rather striking appearance.

E. adspersus n. sp.—Elongate-oval, dull black, thinly clothed with small grayish white scales, intermixed with a fine, short pubescence. Beak long and moderately slender, curved and punctured; median carina and a stria each side extending from the base to about the middle; scrobes deep. Antennæ slender, rufo-piceous; scape thickened at the apex; funicle 6-jointed, first joint moderately stout, nearly as long as the three following joints together; second joint longer than the third; joints 3–6 short, transverse; club rather loosely articulate. Eyes almost flat. Head convex, remotely punctured and thinly clothed with scales, front with a long, linear impression. Prothorax wider than long, narrowed in front; sides rounded from base to apex, latter scarcely constricted; surface densely and coarsely punctured, each puncture bearing a short, scale-like hair; a few larger scales on the sides and along the median line. Elytra one-fourth and rather suddenly wider at the base than the prothorax; sides scarcely rounded and gradually narrowed to apex, coarsely striate and punctured, punctures closely approximate; interspaces feebly convex, rugose, each with several rows of fine punctures, which bear a very short, whitish hair; underside finely punctured, a little more densely clothed with scales; fifth ventral segment longer than the fourth in both sexes. Legs not very slender, thighs feebly clavate, mutic; tibiæ moderately stout, straight, feebly bisinuate internally, armature prominent; tarsi moderately slender, claws simple. Long. 2 mm.; .08 inch.

Hab.—California.

A male and female specimen in Mr. Ulke's collection.

E. nevadicus n. sp.—Elongate-oval, piceous, antennæ and legs reddish, densely clothed with large, oval, yellowish gray or brownish scales. Beak about as long as the head and thorax, moderately slender, curved and slightly wider towards the apex, scaly at the base; striate and rather coarsely punctured (♂) or very finely punctured with the striæ obsolete (♀); scrobes commencing two-fifths (♂), or one-half (♀) from the apex. Antennæ moderately slender, scape slender, strongly incrassate at apex; funicle 6-jointed, first joint stout and but little longer than the second, which is slender and longer than the third; joints 3–6 equal, and rather closely articulate. Eyes nearly flat, not free posteriorly. Head densely scaly, front with an impressed line. Prothorax wider than long, base bisinuate, narrowed in front; sides broadly rounded from base to apex, latter not constricted, but feebly and transversely impressed behind the anterior margin; surface densely punctured, punctures concealed by the scaly covering, a broad, ill-defined, darker stripe each side of the median line. Elytra elongate, one-fourth wider at the base than the prothorax; humeri rounded; sides feebly rounded and gradually narrowed to the apex, which almost completely conceals the pygidium; striæ and punctures nearly concealed by the scales; interspaces, with the scales intact, flattened; first interspace gradually widened from base to apex, where it projects somewhat, giving it, when viewed from above, a subacuminate appearance; toward the outer margin and a stripe each side of the suture not including the first interspace, darker; underside densely scaly; ventral segments subequal, third and fourth but little shorter than the others; pygidium very little exposed in the male; entirely concealed in the female. Legs

moderately stout, thighs clavate, anterior armed with a small tooth, middle scarcely toothed; tibiæ rather short, robust, anterior and middle slightly curved and biemarginate internally, posterior straight, apical armature moderate; tarsi long and slender, first and second joints elongate, third bilobed, with the lobes narrow, fourth long; claws feebly divergent not toothed. Long. 2.5—2.7 mm.; .10—.11 inch.

Hab.—Arizona, Nevada (Morrison).

Five specimens in Dr. Horn's collection.

The simple claws, 6-jointed funicle and dense scaly vestiture, readily distinguish this species, which, however, differs in several points from the other members of this genus; the claws, though simple, are less slender and less divergent, the lobes of the third tarsal joint strikingly narrow, a character I have not observed in any other Anthonomid; the almost concealed pygidium, and lastly the dense, imbricate, scaly vestiture, present a group which might be considered to possess more than specific value. I prefer, however, to leave it in the present genus, rather than to establish a new one on what appears to me insufficient characters.

EPHELOPS gen. nov.

Beak shorter than the head and prothorax and rather robust, feebly curved, punctured; scrobes commencing about the middle of the rostrum and extending immediately beneath the eyes. Antennæ stout, scape short, strongly incrassate at its distal extremity; funicle 7-jointed, first joint very stout, second longer than the third, outer joints wider and shorter; club loosely articulate. Eyes convex, posterior margin free. Head convex; frontal puncture small. Prothorax wider than long, narrowed in front, feebly constricted at the apex; base emarginate each side. Elytra wider at the base than the prothorax; striæ and punctures coarse; ventral segments decreasing in length, fifth shorter than the fourth in the male; pygidium exposed in both sexes. Legs robust; femora clavate; tibiæ stout, widened to apex, anterior and middle unguiculate, posterior mucronate at apex; tarsi short and robust, first joint scarcely longer than wide, second wider than long, third broadly bilobed, fourth about as long as the first and second together; claws short, robust, not toothed.

The type and only representative of this genus is a small, thinly pubescent insect, greatly resembling *Anth. corvulus* Lec., but still smaller.

E. trigutiatus n. sp. Plate vii, fig. 33.—Robust, subovate, black, with some lustre. Beak towards the apex, antennæ and legs rufous; almost glabrous, pu-

bescence white, sparse and very short. Prothorax coarsely, but not densely punctured. Elytral punctures closely approximate; interspaces feebly convex, rugulose; scutellum and a small spot about the middle of the fourth interspace densely clothed with white, squamiform pubescence; anterior thighs armed with a rather large tooth; the tibiæ are feebly biemarginate internally. Long. 1–5 mm.; .06 inch.

Hab.—Key West, Fla. Coll. E. A. Schwarz.

The general habitus and ventral formation recalls here the *signatus* group of Anthonomus. The white scutellum and spot on the fourth interspace give the insect a very characteristic appearance.

ALYCODES gen. nov.

Beak longer than the prothorax and not very slender, cylindrical, curved and deeply striate; scrobes linear, impinging against the middle of the eyes. Antennæ slender, inserted about one-third from the apex; scape long, thickened at the apex; funicle 7-jointed, first joint moderately long and rather slender, second joint longer than the third; following joints rounded, outer ones scarcely wider; club oval, first joint shining. Eyes large, rounded and almost flat. Head spherical, punctured; frontal fovea almost obsolete. Prothorax transverse, but little narrower at the apex than at base, latter truncate; sides rounded, rather suddenly narrowed in front and constricted at the apex. Elytra elongate, much wider at the base than the prothorax; sides parallel, gradually rounded to the tip, which is slightly dehiscent, and completely conceals the pygidium; striate and punctured. Prosternum not very short and somewhat declivous in front of the coxæ; mesosternum not wide between the coxæ and produced in front in the form of a short, obtuse spine; metasternum as long as the first ventral segment at middle; ventral segments unequal, third and fourth short, united about as long as the second; fifth long, rounded; first two segments connate, the suture curved at middle, the other sutures straight; pygidium not visible from below. Legs rather long and slender; thighs feebly clavate, armed with a prominent, broad, triangular tooth; tibiæ slender, very feebly biemarginate internally; articulating surface oblique, all unguiculate at apex, hook rather small; tarsi slender, claws simple, slender and widely divergent, obtuse at apex.

The type and only species, is a remarkable insect, agreeing in form and shape with narrow forms of *Elleschus ephippiatus*. It is sparsely clothed with a very fine, almost imperceptible pubescence. The position of this genus in the present tribe is somewhat doubtful.

The simple claws, covered pygidium and short third and fourth ventral segments, may be considered valid reasons for placing it near Erirrhinus. The formation of the antennæ and the general habitus are distinctly Anthonomid. It forms a transition from the present tribe to the Erirrhinini.

A. dubius n. sp. Plate vii, figs. 34—34*a*.—Elongate-oval, pitchy-black and almost imperceptibly pubescent: the beak is striate and punctured, the striæ extending from the base to about the middle. Head finely punctured. Prothorax finely punctured, more densely on the sides with an ill-defined, smooth, dorsal line; the elytral striæ are fine, punctures moderately large and rather close set; interspaces nearly flat, irregularly punctulate; underside punctured, distal end of tibiæ and the tarsi, rufo-piceous. Long. 3.2 mm.; .13 inch.

Hab.—Canada.

A unique ♂ specimen in the collection of Dr. Hamilton, who has kindly placed it in my cabinet.

ELLESCHUS Stephens.

Beak rather short and robust, cylindrical, and nearly straight; subcarinate. Scrobes oblique, wide and deep, impinging against the lower segment of the eyes. Antennæ moderate, scape short, incrassate at apex; funicle 7-jointed, first joint stout, outer joints wider; club oval, pubescent, first joint longer than usual. Eyes large, transversely oval, moderately convex. Head punctured, densely pubescent between the eyes. Prothorax wider than long, narrowed in front, rounded on the sides; base nearly straight; surface punctured. Elytra elongate, wider at base than the prothorax, slightly dehiscent at the apex and concealing the pygidium; striæ and punctures moderate; middle coxæ narrowly separated by the mesosternum; metasternum as long as the first ventral segment; ventral segments unequal, third and fourth short, united about as long as the second segment, fifth long, rounded; sutures, except the first, bent slightly backward at the sides. Legs moderately long and somewhat stout; thighs clavate; tibiæ not slender, middle and posterior widened towards the apex, all unguiculate; tarsi rather stout, third joint broadly bilobed; claws appendiculate. The fifth ventral segment of male is carinate near the tip.

Lacordaire placed this genus among his Tychiides, on the ground that the 2–4 ventral sutures are slightly bent backward at the sides. Its nearest ally in the present tribe is Alycodes.

In addition to the two species heretofore known in our fauna I

have to record the occurrence of the European *E. Scanicus*, and the addition of a new species. They may be separated as follows:

Femora not toothed; elytra with denuded fascia or spot.
Denuded spot on each elytron.
Pitchy-black, second joint of funicle longer than the third; tarsi more slender, appendiculum moderate, each elytron with a denuded spot. **bipunctatus.**
Ferruginous, second joint of funicle equal to third; tarsi very stout, appendiculum large; elytra fasciate and vittate..... **Scanicus.**
A common denuded fascia; pubescence mottled ..... **ephippiatus.**
Femora toothed; elytra without denuded fascia or spot ..... **angustatus.**

E. bipunctatus Linn. Plate vii, fig. 35*b*.—Elongate-oval, pitchy-black, antennæ and legs ferruginous, densely clothed with coarse, appressed, grayish pubescence. Beak shining, second joint of funicle longer than the third. Prothorax about one-half wider than long, strongly narrowed in front and feebly constricted at apex; sides nearly straight behind, base scarcely emarginate each side; a smooth, median elevated line, abbreviated in front and behind; surface closely punctured, pubescence diverging from the median line. Elytra about one-fourth wider than long, humeri rounded; sides nearly parallel for three-fifths their length, thence gradually rounded to the tip; striæ fine, impressed, punctures moderately large and closely placed; interspaces feebly convex, somewhat roughened and punctured; an irregular, partly denuded spot behind the middle, extending from the second to the fourth interspace and thinly covered with fine, blackish pubescence. Legs moderate, femora clavate, mutic; tibiæ and tarsi only moderately stout, first and second tarsal joints a little wider than long, clawal joint projecting beyond the third; claws armed beneath with a moderately large tooth or appendiculum. Long. 3 mm.; .12 inch.

Hab.—Canada.

Introduced from Europe. The black spot varies in shape and extent, but never invades the first interspace. In some specimens a less pronounced darker space near the base.

E. Scanicus Payk. Plate vii, figs. 35, 35*a*.—More robust than *bipunctatus*; ferruginous, clothed with grayish white or brownish pubescence. Beak stout, punctured, shining, pubescent at base; second and third joints of funicle equal. Eyes as in the preceding. Head punctured, thinly pubescent, except between the eyes. Prothorax strongly rounded on the sides, rather suddenly narrowed in front and narrowly constricted at the apex; base scarcely emarginate each side; surface finely and not densely punctured, dorsal elevated line almost entire. Elytra ovai, about one-third wider at the base than the prothorax; striæ moderately fine; punctures moderate, approximate; interspaces nearly flat; an irregular, oblique fascia about the middle, extending from the second interspace to the sides of the elytra; third, fourth and sixth interspaces for a short distance near the base and a subapical spot, almost denude of pubescence and only thinly covered with fine, brownish pubescence. Legs moderately robust; femora clavate, mutic; tibiæ rather stout and but slightly widened towards the tip; tarsi very robust, first and second joints much wider than long, fourth joint stout and

rather short, projecting but little beyond the lobes of the third joint; claws slender, with a very large, broadly triangular appendiculum at its base. Long. 2.7—3.3 mm.; .21—.13 inch.

Hab.—Pennsylvania.

One male and two female specimens. Coll. Dr. Horn and mine. I captured my specimen (♂) some years ago on oak, and has served as the type of the above description. One of Dr. Horn's specimens agrees in all particulars (except sexual differences) with mine, while the other has the denuded fascia of less extent and the interspaces not denuded near the base.

I have made careful comparison with well authenticated specimens of this species from Europe, and can discover no difference, except that a small denuded spot each side of the thorax is wanting in our specimens, but as this also occurs in one of my European specimens, it is probably of but subordinate value.

E. ephippiatus Say. Plate vii, figs 35*c*, 35*d*.—Elongate, ferruginous, mottled with pale yellowish and fawn-colored pubescence. Beak punctured. Prothorax rather finely and not densely punctured. Elytral striæ with large, closely placed punctures; a large scutellar spot and another somewhat rhomboidal space behind the middle connected along the suture, of darker color. A transverse fascia of grayish pubescence immediately behind the posterior dark space; underside punctured; the claws are slender and armed beneath with a large rectangular tooth at the base. Long. 2—3.3 mm.; .08—.13 inch.

Hab.—Atlantic States; Michigan, Georgia, Kansas, New Mexico, Oregon, California.

A very variable species. The dark elytral spaces are almost obsolete in some specimens.

Mr. Thos. Casey very kindly has sent me a typical specimen of his *E. californicus*. It is entirely pitchy-black, resembling in this respect rather *bipunctatus;* legs a trifle paler. The beak is less punctured, shining, and the second joint of the funicle is longer than the third. In all other respects it agrees with *ephippiatus*, from which it does not appear specifically distinct, but forms a marked variety.

E. augustatus n. sp. Plate vii, fig. 35*d*.—Elongate elliptic, ferruginous, not very densely clothed with whitish, squamiform pubescence. Beak rather slender and moderately long, punctured and somewhat shining; substriate and rather densely scaly from base to about the middle. Antennæ slender; first joint of funicle long and slender, second a little longer than the third, outer joints but little wider. Eyes as usual. Head punctured, occiput sparsely pubescent, densely squamous between the eyes. Prothorax wider than long, broadly rounded on the sides and very little wider at base than at the apex.

which is not constricted, smooth dorsal line short, just in front of the middle; punctures rather small and close set. Elytra elongate, about one-fourth wider at the base than the prothorax; sides nearly straight for three-fifths their length, thence gradually narrowed to apex, which is subacuminate; striæ moderately impressed, punctures small, closely approximate; interspaces nearly flat; pubescence nearly equally distributed; underside finely punctured and pubescent. Legs rather slender, thighs feebly clavate, anterior armed with a small acute tooth, which is represented on the middle and hind pair by an acute angle, less marked on the hind femur; tarsi less robust, fourth joint extending considerably beyond the third; claws armed beneath with a short obtuse tooth. Long. 2.8—3 mm.; .11—.12 inch.

Hab.—Arizona, Kentucky.

Two specimens, male and female, in Dr. Horn's collection. A very distinct species and unmistakable members of the present genus. The rather slender beak and toothed femora are anomalous.

ORCHESTES Ill.

The eyes closely approximate above and the saltatorial posterior femora make the recognition of the species of this genus an easy matter. The beak, variable in length and thickness, lies between the anterior legs during repose; the scrobes commencing about the middle or even near the base; scape of antennæ not long; funicle 6- or 7-jointed. The prothorax is relatively small. The elytra oval or elongate-oval, wider than the prothorax, with the humeri rounded.

In reviewing the species I shall give only sufficient descriptive matter which, in connection with the synoptic table, will enable the student to identify his material. To the species heretofore known I have to add one new species.

They may be tabulated as follows:

Funicle of antennæ 7-jointed.
- Elytra with patterns of pale pubescence.
  - An anterior and posterior transverse band, always conspicuous.
    - Anterior fascia wide, legs partly rufous ..... **ephippiatus.**
    - Anterior fascia narrower; legs entirely black ..... **salicis.**
  - A faint subbasal, transverse band only ..... **niger.**
- Elytra unicolorous, black.
  - Hind angles of prothorax rounded or rectangular, elytra without lateral spine ..... **parvicollis.**
  - Hind angles of prothorax acute; elytra with a subhumeral spine. **armatus.**

Funicle 6-jointed.
- Hind femora strongly thickened.
  - Pubescence long and coarse, brownish ..... **puberulus.**
  - Pubescence fine, sparse and whitish.
    - Black, thoracic punctures large, irregular; elytral interspaces coarsely rugose ..... **canus.**

Black, thoracic punctures moderate, round; elytral interspaces almost smooth, shining ..... **pallicornis.**
Black, elytra and abdomen red ..... **betuleti.**
Hind femora scarcely thickened.
Legs rufous ..... **rufipes.**
Legs piceous..... Var. **minutus.**

O. ephippiatus Say.—Robust, oval, piceous; beak, antennæ and legs rufous. Prothorax small, rufo-piceous, not densely clothed with whitish pubescence. Elytra oval, much wider than the prothorax; anterior two-fifths and a transverse post-median fascia rufous, or rufo-piceous and densely clothed with white pubescence and connected by a line on the second interspace; femora, especially the posterior, wholly or in part piceous. Long. 2.5—3 mm.; .10—.12 inch.

Hab.—Pennsylvania, Iowa, Illinois, California, Wisconsin.

Allied to *O. rufitarsis* Germ. of Europe.

O. salicis Linn.—Similar to the preceding, but smaller and less robust Black, antennæ and tarsi rufous; anterior elytral fascia narrower than in *ephippiatus*, about one-third from the base, irregular, prolonged along the sutural interspace to the scutellum in front and extended along the second interspace posteriorly, but not connected with the posterior transverse band which is narrow and angulated. Long. 2.5 mm.; .10 inch.

Hab.—California, Wisconsin.

This is *O. subhirtus* Horn. Careful comparison of Dr. Horn's types with specimens of the European species in my cabinet leave no doubt of their identity.

O. niger Horn.—Rather robust, subovate; black, antennæ piceous, clothed with short pubescence, which is black on the upper and whitish on the under surface; scutellum densely white pubescent; an inconspicuous, transverse fascia about one-third from the base and consisting of sparse white pubescence. Long. 2.8 mm.; .11 inch.

Hab.—Illinois, Michigan, Pennsylvania.

The white scutellum is in striking contrast with the rest of the surface.

O. parvicollis Lec.—Entirely black, oblong-oval with scarcely any lustre. Prothorax coarsely and rather densely punctured; hind angles subrectangular, somewhat rounded. Elytral interspaces very rough. Long. 2.8—3 mm.; .11—12 inch.

Hab.—California, Nevada, Colorado.

Distinguished from the three preceding species by the absence of elytral markings and from the following by its coarse sculpture, rounded posterior angles of thorax and the ninth elytral interspace not produced in a spine.

O. armatus n. sp. Plate vii, fig. 36.—Subovate, robust, very convex, black and shining; very sparsely clothed with short, pale, suberect pubescence. Beak cylindrical, shining, substriate and rather coarsely punctured, especially near the tip. Antennæ entirely pale testaceous, very slender; scape short, funicle 7-jointed, first joint long, second and third elongate, subequal, joints 4-7 shorter, rounded; clava elongate. Prothorax wider than long, and nearly twice as wide at base than at apex, sides oblique, nearly straight, feebly constricted at tip, hind angles acute, punctures moderately large and rather remote, each bearing a short whitish hair. Elytra broadly oval, very convex, not much wider at base than the prothorax; humeri prominent, callous and rounded; striæ rather fine, punctures small and not closely approximate; interspaces slightly convex, smooth and shining, each with a row of fine, remote punctures bearing a short, hair; the ninth interspace near the base is produced in the form of a short, acute spine directed forward: under surface a little more densely and coarsely pubescent; hind femora scarcely incrassate; tarsi pale rufous. Long. 2.3 mm.; .09 inch.

Hab.—Allegheny, Pa. A single female specimen. Collected and kindly given me by Dr. Hamilton.

Very different from any other Orchestes known to me and remarkable for its very convex form, shining surface, acute posterior thoracic angle, and the acute spine of the ninth interspace.

O. puberulus Boh.—Elongate oval, black, antennæ and legs testaceous, densely clothed with long, coarse, gray or yellowish gray pubescence; funicle 6-jointed; scutellum clothed with white pubescence. Elytra regularly oval, humeri rounded, not at all prominent. Long. 3.2—4 mm.; .12—.16 inch.

Hab.—California.

Easily known by its coarse, yellowish pubescence.

O. canus Horn.—Similar in form to the preceding species, but the humeri are more prominent. Black, antennæ rufo-piceous; pubescence short, sparse, whitish. Prothorax punctured, punctures rather crowded and irregular. Elytral interspaces rugulose, roughened with some lustre. Long. 2.8—3.2 mm.; .11—.13 inch.

Hab.—Michigan, Colorado.

Resembles *O. stigma* Germ. of Europe, but the pubescence is white or yellowish, and the elytral striæ are less deeply impressed.

O. pallicornis Say.—Similar to *canus*, but a trifle smaller, with the humeri still more prominent. Black, antennæ and tarsi reddish. Prothorax less densely punctured, punctures less irregular; the elytral interspaces are nearly smooth and more shining. Long 3 mm.; .12 inch.

Hab.—Atlantic States to Texas, Michigan.

O. betuleti Horn.—Somewhat elongate-oval; black, elytra and abdomen bright red; pubescence sparse, almost imperceptible. Prothorax coarsely and remotely punctured. Long. 2.8 mm.; .11 inch.

Hab.—Maryland, District of Columbia.

Easily recognized by its striking coloration.

O. rufipes Lec.—Elliptic, smaller and less robust than any of the preceding ecies. Black, thinly pubescent; antennæ and legs rufous; hind femora feebly crassate, more or less piceous. Long. 2 mm.; .08 inch.

Closely allied to the European *O. foliorum* Müller, from which it ppears to differ by the prothorax being a little more transverse and ot rounded in front.

O. minutus Horn is a variety of the above with the legs entirely ceous. It occurs in California and Colorado.

XANTHUS gen. nov.

I have established this new genus upon two very small, testaceous nd thinly pubescent species having the claws simple, divergent, and ne tibiæ almost truncate at the tip, with the armature very small. eak long, rather slender and nearly straight, a little widened towards the tip, not striate; scrobes straight, attaining the eyes, which re convex. Antennæ moderately stout, inserted two-fifths (♂) or ne-half (♀) from the apex; scape slender, impinging against the ye; funicle 7-jointed, first joint stout, second and third nearly equal, ater joints transversely rounded; club rather loosely articulate; ront sulcate. Prothorax wider than long, feebly narrowed in front nd slightly constricted behind the anterior margin. Elytra a little ider at the base than the prothorax, striate and punctured; mesternum moderately wide between the coxæ, declivous in front: rst and second ventral segments moderately long, third and fourth norter, equal; fifth not longer than the fourth in the male; pyidium freely exposed in both sexes. Legs moderately slender, nighs feebly clavate; tibiæ straight, slightly widened towards the p; anterior and middle with a very small, scarcely perceptible ook, posterior feebly mucronate at apex; tarsi with the third joint roadly bilobed; claws simple.

The two species are amongst the smallest in the tribe and are istinguished as follows:

arger, rufo-testaceous; prothorax more densely punctured, pubescence conspicuous ..... **pygmæus.**

maller, pale testaceous; prothorax remotely punctured, pubescence very fine. **liliputanus.**

X. pygmæus n. sp. Plate vii, figs. 37, 37*a*.—Elongate-subovate, rufo-testaeous, pubescence white and rather long, especially on the prothorax. Beak ining, finely punctured. Head sparsely punctured and pubescent, frontal ulcus long. Prothorax moderately wider than long, feebly rounded on the des in front; surface coarsely and densely punctured, each puncture bearing a ong hair. Elytra a little wider behind the middle; sides nearly straight for

O. armatus n. sp. Plate vii, fig. 36.—Subovate, robust, very convex, black and shining; very sparsely clothed with short, pale, suberect pubescence. Beak cylindrical, shining, substriate and rather coarsely punctured, especially near the tip. Antennæ entirely pale testaceous, very slender; scape short, funicle 7-jointed, first joint long, second and third elongate, subequal, joints 4–7 shorter, rounded; clava elongate. Prothorax wider than long, and nearly twice as wide at base than at apex, sides oblique, nearly straight, feebly constricted at tip, hind angles acute, punctures moderately large and rather remote, each bearing a short whitish hair. Elytra broadly oval, very convex, not much wider at base than the prothorax; humeri prominent, callous and rounded; striæ rather fine, punctures small and not closely approximate; interspaces slightly convex, smooth and shining, each with a row of fine, remote punctures bearing a short, hair; the ninth interspace near the base is produced in the form of a short, acute spine directed forward; under surface a little more densely and coarsely pubescent; hind femora scarcely incrassate; tarsi pale rufous. Long. 2.3 mm.; .09 inch.

Hab.—Allegheny, Pa. A single female specimen. Collected and kindly given me by Dr. Hamilton.

Very different from any other Orchestes known to me and remarkable for its very convex form, shining surface, acute posterior thoracic angle, and the acute spine of the ninth interspace.

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Hab.—California.

Easily known by its coarse, yellowish pubescence.

O. canus Horn.—Similar in form to the preceding species, but the humeri are more prominent. Black, antennæ rufo-piceous; pubescence short, sparse, whitish. Prothorax punctured, punctures rather crowded and irregular. Elytral interspaces rugulose, roughened with some lustre. Long. 2.8–3.2 mm.; .11–.13 inch.

Hab.—Michigan, Colorado.

Resembles *O. stigma* Germ. of Europe, but the pubescence is white or yellowish, and the elytral striæ are less deeply impressed.

O. pallicornis Say.—Similar to *canus*, but a trifle smaller, with the humeri still more prominent. Black, antennæ and tarsi reddish. Prothorax less densely punctured, punctures less irregular; the elytral interspaces are nearly smooth and more shining. Long 3 mm.; .12 inch.

Hab.—Atlantic States to Texas, Michigan.

O. betuleti Horn.—Somewhat elongate-oval; black, elytra and abdomen bright red; pubescence sparse, almost imperceptible. Prothorax coarsely and remotely punctured. Long. 2.8 mm.; .11 inch.

Hab.—Maryland, District of Columbia.

Easily recognized by its striking coloration.

O. rufipes Lec.--Elliptic, smaller and less robust than any of the preceding species. Black, thinly pubescent; antennæ and legs rufous; hind femora feebly incrassate, more or less piceous. Long. 2 mm.; .08 inch.

Closely allied to the European *O. foliorum* Müller, from which it appears to differ by the prothorax being a little more transverse and not rounded in front.

O. minutus Horn is a variety of the above with the legs entirely piceous. It occurs in California and Colorado.

XANTHUS gen. nov.

I have established this new genus upon two very small, testaceous and thinly pubescent species having the claws simple, divergent, and the tibiæ almost truncate at the tip, with the armature very small. Beak long, rather slender and nearly straight, a little widened towards the tip, not striate; scrobes straight, attaining the eyes, which are convex. Antennæ moderately stout, inserted two-fifths (♂) or one-half (♀) from the apex; scape slender, impinging against the eye; funicle 7-jointed, first joint stout, second and third nearly equal, outer joints transversely rounded; club rather loosely articulate; front sulcate. Prothorax wider than long, feebly narrowed in front and slightly constricted behind the anterior margin. Elytra a little wider at the base than the prothorax, striate and punctured; mesosternum moderately wide between the coxæ, declivous in front: first and second ventral segments moderately long, third and fourth shorter, equal; fifth not longer than the fourth in the male; pygidium freely exposed in both sexes. Legs moderately slender, thighs feebly clavate; tibiæ straight, slightly widened towards the tip; anterior and middle with a very small, scarcely perceptible hook, posterior feebly mucronate at apex; tarsi with the third joint broadly bilobed; claws simple.

The two species are amongst the smallest in the tribe and are distinguished as follows:

Larger, rufo-testaceous; prothorax more densely punctured, pubescence conspicuous ..... **pygmæus.**

Smaller, pale testaceous; prothorax remotely punctured, pubescence very fine. **liliputanus.**

X. pygmæus n. sp. Plate vii, figs. 37, 37*a*.--Elongate-subovate, rufo-testaceous, pubescence white and rather long, especially on the prothorax. Beak shining, finely punctured. Head sparsely punctured and pubescent, frontal sulcus long. Prothorax moderately wider than long, feebly rounded on the sides in front; surface coarsely and densely punctured, each puncture bearing a long hair. Elytra a little wider behind the middle; sides nearly straight for

three-fifths their length, thence rounded to the tip; striæ scarcely impressed, punctures elongate, moderately large and not very close; interspaces feebly convex, rugulose and irregularly punctured; underside with a few punctures; abdomen very sparsely, pectus more densely pubescent, anterior thighs armed with a very small tooth. Long. 1.5—1.8 mm.; .06—.07 inch.

Hab.—Anglesea, N. J. (Dr. Horn); Piney Point, Md. (E. A. Schwarz and H. Ulke.)

X. liliputanus n. sp.—Smaller, elongate-oblong, subdepressed, pale testaceous and very sparsely clothed with fine, whitish pubescence, otherwise very similar to *pygmæus;* the beak is very sparsely punctured, shining. Antennæ, eyes and head as in the preceding. Prothorax wider than long, punctures smaller and less dense. Elytra elongate, sides feebly rounded from humerus to apex; striæ fine, punctures small; interspaces rugulose; underside and legs as in *pygmæus;* tooth of anterior thighs very small, broadly triangular. Long. 1.5 mm.; .06 inch.

Hab.—District of Columbia.

Two specimens in Mr. Ulke's collection. A little more slender than the preceding; the hook of the anterior and middle tibiæ is scarcely perceptible.

ACALYPTUS Sch.

Beak moderately slender, cylindrical, curved; scrobes commencing near the middle of the beak, straight, and directed against the middle of the eyes. Antennæ slender; scape incrassate towards its distal end, funicle 7-jointed, equally pubescent, without verticels of stiff hairs; first joint long and robust, joints 2–7 gradually wider, closely articulate, and scarcely longer than the clava, which is ovoidal acuminate, pubescent and annulate; first joint long, occupying nearly one-half the length, following joints short. Head broadly conical. Eyes feebly convex. Prothorax wider than long, narrowed in front and constricted at the apex; base obliquely truncate each side. Elytra wider at base than the prothorax, oval, sides feebly rounded, indistinctly striate and punctured, rather suddenly narrowed and separately rounded at the apex, leaving the pygidium freely exposed; anterior coxæ narrowly separated by the prosternum, which is long in front of the coxæ; middle coxæ separated by the mesosternum, which is declivous in front; metasternum moderately long; first and second ventral segments of equal length behind the coxæ, third and fourth segments short, united as long as the second, fifth scarcely longer than the fourth in the male; longer and broadly rounded in the female. Legs rather slender, thighs clavate, mutic; tibiæ slender, scarcely widened to apex, anterior and middle not unguiculate, pos-

erior with a very short mucro at apex; tarsi moderately long, first nd second joints about as wide as long, third deeply, but not broadly ilobed, fourth joint slender, moderately long; claws slender, simple nd divergent.

An aberrant member of the present tribe; the prosternum long n front of the coxæ, equally pubescent antennal funicle and un-rmed tibiæ are not found in any other. In the long prosternum it s somewhat approached by *Anth. rufipes*.

The only species occurring in our fauna has been introduced from Europe.

A. carpini Herbert. Plate vii, fig. 38.—Oval, piceous, finely and densely unctured, and densely clothed above with short, grayish white pubescence, aving a somewhat silvery lustre; the beak is densely punctured and opaque ♂), or less densely punctured, shining (♀); underside less densely pubescent. Antennæ and legs rufous. Long. 2.2—2.8 mm.: .09—.11 inch.

Hab.—Canada, New Jersey, Wisconsin, Kansas, N. Illinois.

EUCLYPTUS gen. nov.

Beak slender, about as long as head and prothorax, strongly curved, neither striate nor carinate; scrobes linear, commencing about the middle (♀) and reaching the middle of the eyes. Antennæ not very slender; scape moderately long, incrassate at the apex; funicle 7-jointed, pubescent first joint very long, second joint a little nger than the third, joints 3–7 transverse, closely articulate, outer nts wider; club obovate, pubescent, first joint large, occupying re than one-half of the whole mass, following joints short, somet retracted. Eyes rounded, moderately large, convex. Head ose, punctured; front flattened, not foveate. Prothorax a little ened, wider than long, slightly narrowed in front, broadly rounded he sides and base; scutellum small. Elytra elongate, wider at base than the prothorax; sides feebly rounded and gradually owed to apex, which is separately rounded, leaving the pygidium osed, striate and punctured; prosternum short in front of the ae, which are conical and more prominent than usual; mesosternum moderately wide between the coxæ, declivous in front and nded behind; metasternum a little longer than the first ventral ment at middle. Ventral segments very unequal, first and second derately long, third and fourth very short, and united scarcely as g as the second; fifth very long (♀), as long as the second and d together; pygidium exposed. Legs slender, femora feebly ate, mutic; tibiæ slender, straight; articular surface oblique and armed at the apex; tarsi slender, third joint not broadly bilobed; ws slender, with a broad, obtuse tooth underneath.

type of this genus is a small testaceous insect without close onship in any direction, except, perhaps, Acalyptus, with which grees in the somewhat flattened thorax, unarmed tibiæ and the ation of the funicle. It agrees with Alycodes and Elleschus in ominal formation and appendiculate claws, but the fifth ventral segment is very long, and it is very different in other respects.

E. testaceus n. sp. Plate vii, figs. 39, 39*a*, 39*b*, 39*c*.—Elliptic, testaceous, almost glabrous. Beak shining, with a few remote punctures. Prothorax rather closely and finely punctured, with an ill-defined, smooth dorsal line extending from the anterior margin to about the middle. Elytral striæ impressed, punctures moderate, close set; interspaces scarcely convex, slightly roughened; under surface remotely punctulate. Long. nearly 2 mm.; .07 inch.

Hab.—Buffalo, N. Y.

A unique ♀ in my collection. Easily recognized by its pale color, ventral formation, unarmed tibiæ and appendiculate claws. In appearance it resembles *Notolomus basalis*, without, however, the dark basal spot of the elytra.

Bibliography and Synonymy.

MAGDALINOPS n. g.

1. M. vittipennis n. sp.

MACRORHOPTUS Lec.

1. M. estriatus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 209.
2. M. hispidus n. sp.

TACHYPTERUS n. g.

1. T. quadrigibbus Say, Curc. 15, ed. Lec. 1, p. 277; Sch., Curc. iii, p. 334
2. T. consors n. sp.

CIONISTES n. g.

1. C. insolens n. g.

ANTHONOMUS Germ.

Subgenus Coccotorus Lec.

1. A. scutellaris Lec., Proc. Acad. Nat. Sci. Phila., 1858, p. 79; *Anth. ? prunicola* Walsh, Prairie Farmer, June 13, 1863; Proc. Bost. Soc. Nat. Hist. ix. [illegible]
2. A. hirsutus Brun., Annual Report Neb. State Board of Agriculture, 1[illegible]-126; Insect Life, ii, p. 259, fig. 55.

Subgenus Anthonomocyllus.

1. A. elegans Lec., Proc. Amer. Philos. Soc. vol. xv, p. 202.
2. A. leucostictus n. sp.
3. A. Hamiltoni n. sp.
4. A. pusillus Lec., Proc. Amer. Phil. Soc. vol. xv, p. 202.

Subgenus Trichobaropsis.

1. A. texanus n. sp.

Subgenus Leptarthrus.

1. A. julichi n. sp.
2. A. irroratus n. sp.

Subgenus Anthonomorphus.

1. A. fulvus Lec., Proc. Acad. Nat. Sci. Phila. 1858, p. 79.
2. A. peninsularis n. sp.
3. A. pervilis n. sp.

Subgenus **Paranthonomus.**

A. **profundus** Lec., Proc. Amer. Philos. Soc., vol. xv, p. 198.
A. **vulpinus** n. sp.
A. **rubidus** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 199.

Subgenus **Anthonomus.**

A. **nebulosus** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 197.
A. **pomorum** Linné, Syst. Nat. ed. x, p. 381; Boh., Sch. Gen. Curc. vii, 2, p. 217; Herbst., Kaefer. vi, p. 157, 70, fig. 11; Deshroch., Mon. p. 449.
A. **grandis** Boh., Sch. Gen. Curc. vii, 2, p. 232.
A. **gularis** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 197.
A. **virgo** n. sp.
A. **rufipennis** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 200.
A. **Bolteri** n. sp.
A. **rubellus** n. sp.
A. **confusus** n. sp.
A. **sycophanta** Walsh, Proc. Ent. Soc. Philos. vi, p. 265.
A. hæmatopus Boh., Sch. Gen. Curc. vii, 2, p. 222.
A. **suturalis** Lec., Ann. Lyc. Nat. Hist. N. York i, 171, pl. xi, fig. 9; Gyll., Sch. Gen. Curv. 111, p. 346; Boh., ibid. vii, 2, p. 223; *erythropterus* Say, Curc. 25, ed. Lec., 1, 283.
A. **brunnipennis** Mann., Bull. Mosc. 1843, ii, p. 292.
A. **melancholicus** n. sp.
A. **flavicornis** Boh., Sch. Curc. vii, 2, p. 231.
A. **morulus** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 201.
A. **corvulus** Lec., ibid.
A. **subguttatus** n. sp.
A. **signatus** Say, Curc, 25; ed. Lec., i, 293; Gyll., Sch. Gen. Curc. iii, p. 348; Boh., ibid. vii, 2, p. 221; *A. bisignatus* Gyll., ibid. iii, p. 344.
Var. *pallidus.*
A. **consimilis** n. sp.
A. **vespertinus** n. sp.
A. **musculus** Say, Curc. 15; ed. Lec. i, p. 277; Gyll., Sch. Gen. Curc. iii. p. 35.
A. **concinnus** n. sp.
A. **sulcifrons** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 201.
A. **sexguttatus** n. sp.
A. **interstitialis** n. sp.
A. **ebeninus** n. sp.
A. **nigrinus** Boh., Sch. Gen. Curc. vii, 2, p. 230.
A. **albopilosus** n. sp.
A. **xanthocnemus** n. sp.
A. **æneolus** n. sp.
A. **faber** n. sp.
A. **effetus** n. sp.
A. **scutellatus** Gyll., Sch. Gen. Curv. iii, p. 342.
A. **dissimilis** n. sp.
A. **orchestoides** n. sp.
A. **juniperinus** Sanb. (*Erirrhinus*), Proc. Bost. Soc. Nat. Hist. xii, p. 81.

37. A. ater Lec., Proc. Amer. Philos. Soc. vol. xv, p. 198.
. squamosus Lec., ibid. p. 202.
. tectus Lec., ibid. p. 203.
A. squamulatus n. sp.
A. molochinus n. sp.
pes Lec., Proc. Amer. Philos. Soc. vol. xv, p. 204.
unctus Lec., ibid. p. 204.
44. A. murinus n. sp.
45. A. hirtus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 203.
46. A. ochreopilosus n. sp.
47. A. pa perculus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 203.

48. A. latiuscu n. sp.
49. A. subfascia s Lec., Proc. Amer. Philos. Soc. vol. vx, p. 205.
50. A. robustulus Lec., ibid. p. 205.
51. A. moleculus Casey, Contributions No. 2, p. 191.

52. A. ungularis Lec., Proc. Amer. Philos. Soc. vol. xv, p. 206.
53. A. floralis n. sp.
54. A. nubilus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 205.

Subgenus Cnemocyllus.

1. A. subvittatus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 203.
2. A. ornatulus n. sp.
3. A. figuratus n. sp.
4. A. inermis Boh., Eugenies Resa, Coleop. 131.
5. A. jacobinus n. sp.
6. A. decipiens Lec., Proc. Amer. Philos. Soc. vol. xv, p. 206.
7. A. canus Lec., ibid. p. 207.
8. A. affinis Lec., ibid. p. 207.
9. A. nanus Lec., ibid. p. 207.
10. A. elongatus Lec., ibid. p. 204.
11. A. ligatus n. sp.
12. A. lineatulus n. sp.

Subgenus Anthonomochæta.

1. A. heterogenus n. sp.

ANTHONOMOPSIS n. g.

1. A mixtus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 206.

PSEUDANTHONOMUS n. g.

1. P. crataegi Walsh, Proc. Ent. Soc. Phila. vi, p. 266.
2. P. validus n. sp.
3. P. incipiens n. sp.
4. P. seriesetosus n. sp.
5. P. tomentosulus n. sp.
6. P. facetus n. sp.
7. P. longulus n. sp.
8. P. rufulus n. sp.
9. P. brunneus n. sp.
10. P. parvulus n. sp.
11. P. relictus n. sp.

NEOMASTIX n. g.

1. **N. solidaginis** n. sp.
2. **N. punctulatus** n. sp.

CHELONYCHUS n. g.

1. **C. longipes** n. sp.

NANOPS n. g.

1. **N. Schwarzii** n. sp.

EPIMECHUS n. g.

1. **E. mimicus** n. sp.
2. **E. curvipes** n. sp.
3. **E. soriculus** n. sp.
4. **E. adspersus** n. sp.
5. **E. nevadicus** n. sp.

EPHELOPS n. g.

1. **E. triguttatus** n. sp.

ALYCODES n. g.

1. **A. dubius** n. sp.

ELLESCHUS Steph.

1. **E. bipunctatus** Linné, Syst. Nat. ed. x, p. 380; Boh., Sch. Gen. Curc. vii. 2, p. 187.
2. **E. Scanicus** Payk., Fauna Suec. iii, p. 251; Boh., Sch. Gen, Curc. vii. 2, p. 186.
3. **E. ephippiatus** Say, (Erirrhinus). Curc. 25; ed. Lec. i, p. 293; Gyll., Sch. Gen. Curc. iii, 289; Walsh, Proc. Ent. Soc. Phila. vi, p. 268.
   Var. *E. californicus* Casey, Contributions No. 2, p. 193.
4. **E. angustatus** n. sp.

ORCHESTES Ill.

1. **O. ephippiatus** Say, Curc. 16; ed. Lec. i, 280.
2. **O salicis** Linné, Syst. Nat. ed. x, p. 381; Oliv., Ent. v, 83, p. 104, t. 31, fig. 490; Bris. Mon p. 292.
   O. subhirtus Horn, Proc. Amer. Philos. Soc. November, 1873, p. 462.
3. **O. niger** Horn, ibid. p. 462.
4. **O. parvicollis** Lec., Proc. Amer. Philos. Soc. vol. xv, p. 208.
5. **O. armatus** n. sp.
6. **O. puberulus** Boh . Eugenies Resa Ins. p. 133.
7. **O. canus** Horn, Proc. Amer. Philos. Soc. 1878, p. 620.
8. **O. pallidicornis** Say, Curc. 16; ed. Lec. vol. i, p. 280.
9. **O. betuleti** Horn, Trans. Amer. Ent. Soc. 1885, p. 161.
10. **O. rufipes** Lec., Proc. Amer. Philos. Soc. vol. xv, 208.
    Var. *O. minutus* Horn, Proc. Amer. Philos. Soc. 1878, p. 620

XANTHUS n. g.

1. **X. pygmæus** n. sp.
2. **X. liliputanus** n. sp.

ACALYPTUS Schwenk.

1. **A. carpini** Hbrt.. Kaef. vi, p. 204, t. 74, fig. 3, *a-b*; Gyll., Ins. Suec iii p 120.

EUCLYPTUS n. g.

1. **E. testaceus** n. sp.

Unrecognized Species.

1. **A. helvolus** Boh., Sch. Gen. et Spec. Curc. vol. vii. 2, p. 224.

EXPLANATION OF PLATE V.

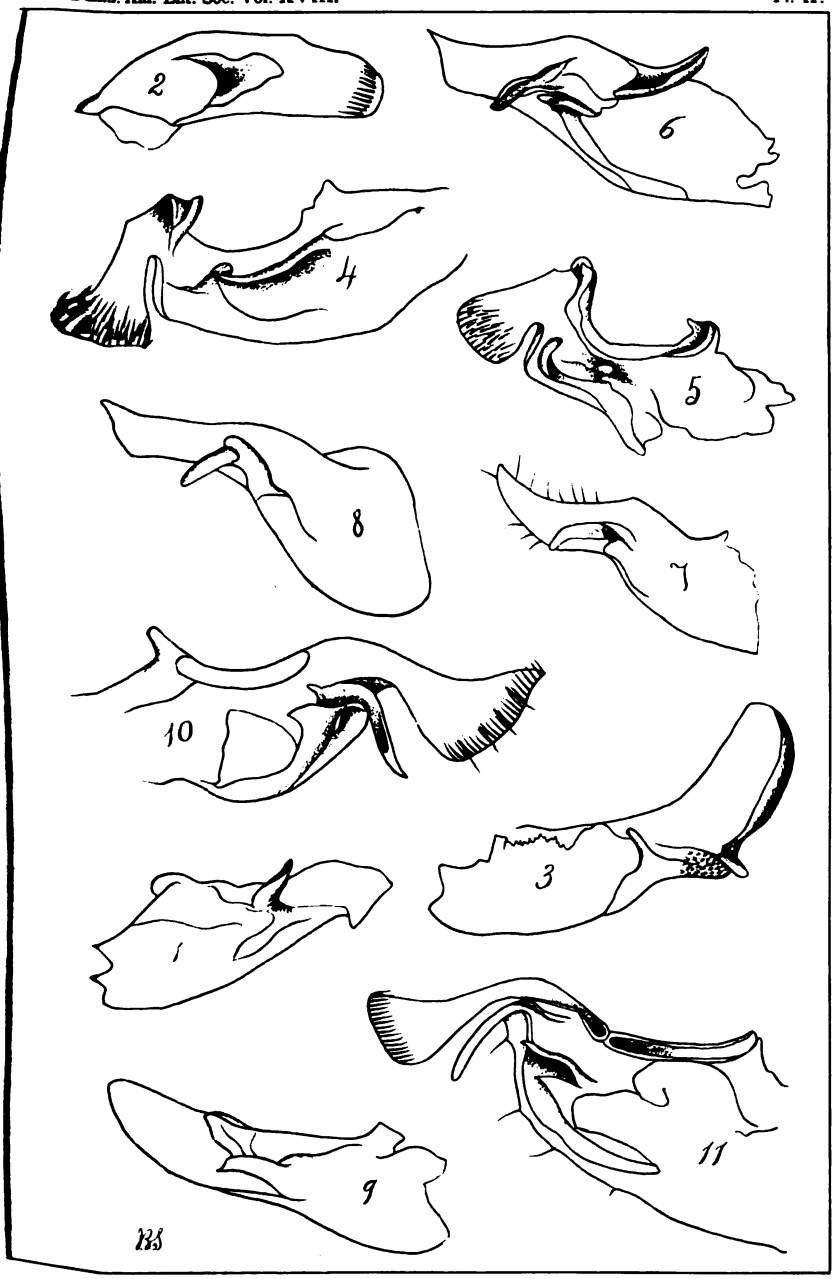
Fig. 1.—*Magdalinops vittipennis;* 1*a*, under surface of same; 1*b*, antennæ of sa
" 2.—Lateral view of head and rostrum of *Macrohoptus estriatus.*
" 3.—Antennæ of *Tachypterus quadrigibbus;* 3*a*, posterior tibia of same.
" 4.—*Cionistes insolens;* 4*a*, lateral view of head of same.
" 5.—Abdomen of *Coccotorus scutellaris* ♂.
" 6.—*Anthonomocyllus elegans;* 6*a*, underside of same; 6*b*, lateral view of sa
" 7.—*Anthonomocyllus leucostictus;* 7*a*, anterior view of head and beak of sa
" 8.—Front view of head and beak of *Anthonomorphus fulvus;* 8*a*, s
viewed laterally.
" 9.—Lateral view of head, beak and antenna of *Trichobaropsis texanus.*
" 10.—*Leptarthrus Julichi;* 10*a*, antennæ of same; 10*b*, anterior leg of sam

EXPLANATION OF PLATE VI.

Fig. 11.—Antenna of *Leptarthrus irroratus;* 11*a*, anterior tibia of same.
" 12.—Anterior thigh and tibia of *Anth. pomorum.*
" 13.—Anterior tibia of *Anth. virgo* ♂.
" 14.—Abdomen of *Anth. flavicornis* ♂.
" 15.—Abdomen of *Anth. signatus* ♂.
" 16.—Abdomen of *Anth. scutellatus* ♂.
" 17.—Anterior tibia, showing terminal hook of *Anth. ochreopilosus.*
" 18.—*Anthonomus pauperculus.*
" 19.—Posterior tibia of *Cnemocyllus subvittatus* ♂; 19*a*, same of ♀.
" 20.—*Cnemocyllus ornatulus;* 20*a*, posterior tibia of ♂ of same; 20*b*, post
tibia and tarsus of same ♀.
" 21.—*Cnemocyllus figuratus;* 21*a*, posterior tibia and tarsus of same ♂.
" 22.—Posterior tibia of *Cnemocyllus inermis* ♂; 22*a*, abdomen of same.
" 23.—*Cnemocyllus elongatus;* 23*a*, hind tibia of ♂ of same.
" 24.—*Cnemocyllus ligatus;* 24*a*, hind tibia of ♂ of same; 24*b*, hind tibi
♀ of same.
" 25.—*Cnemocyllus lineatulus*

EXPLANATION OF PLATE VII.

Fig. 26.—Abdomen of *Anthonomopsis mixtus.*
" 27.—Lateral view of head, beak and antenna of *Pseudanthonomus incip*
" 28.—Antennæ of *Pseudanthonomus relictus.*
" 29.—Antenna of *Neomastix solidaginis.*
" 30.—Anterior leg of *Chelonychus longipes;* 30*a*, lateral view of tarsus of s
30*b*, claws of same.
" 31.—Head, beak and antenna of *Nanops Schwarzii.*
" 32.—Posterior tibia of *Epimechus curvipes.*
" 33.—Head and antenna of *Ephelops trigattatus.*
" 34.—*Alycodes dubius;* 34*a*, abdomen of same.
" 35. *Elleschus Scanicus;* 35*a*, claw of same; 35*b*, same of *E. bipunctatus*
same of *E. ephippiatus;* 35*d*, same of *E. angustatus;* 35*e*, abdome
E. ephippiatus.
" 36. *Orchestes armatus.*
" 37.—Antenna of *Xanthus pygmæus;* 37*a*, tibia of same.
" 38. Antenna of *Acalyptus carpini.*
" 39.—Antenna of *Eaclyptus testaceus;* 39*a*, abdomen of same; 39*b*, ant
tibiæ of same; 39*c*, tarsal claw of same.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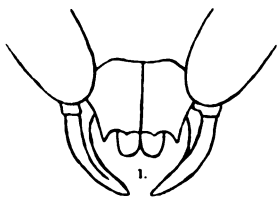
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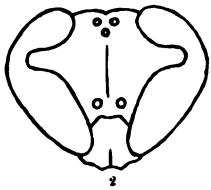
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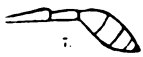
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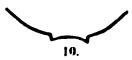
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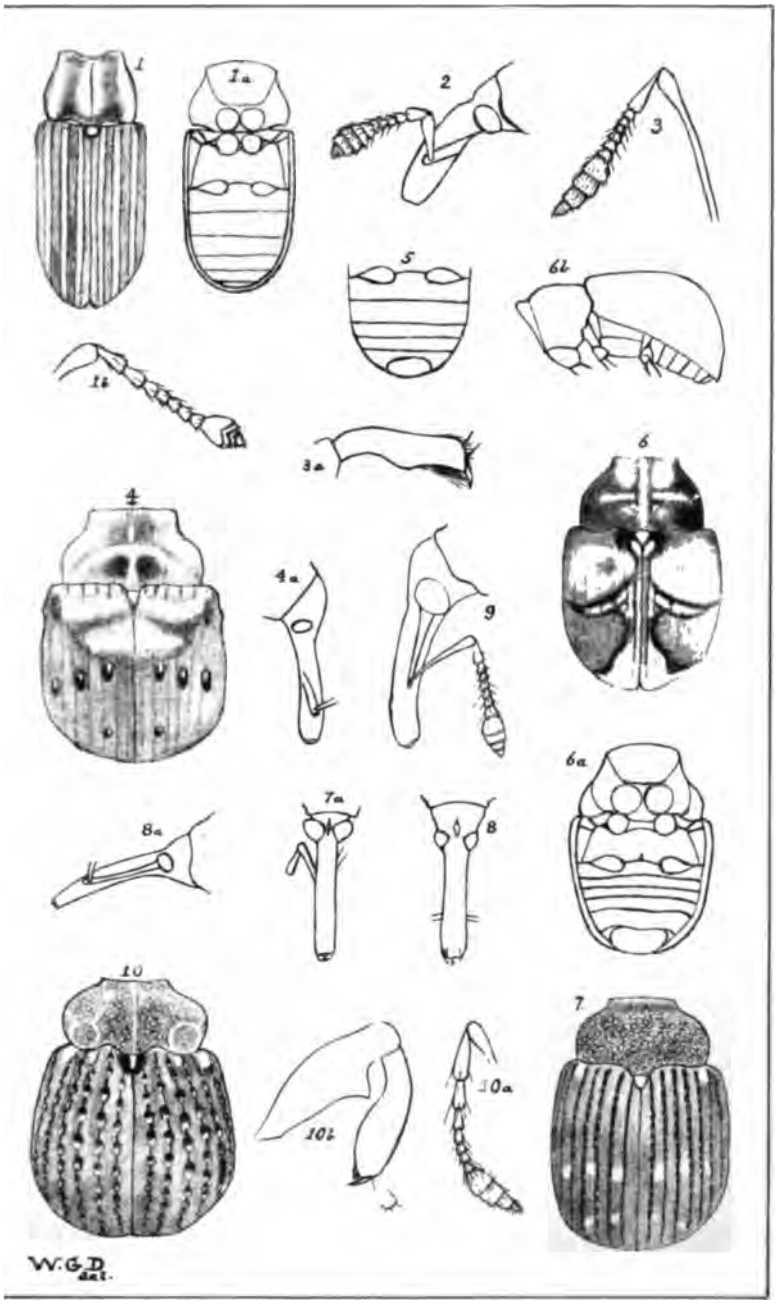
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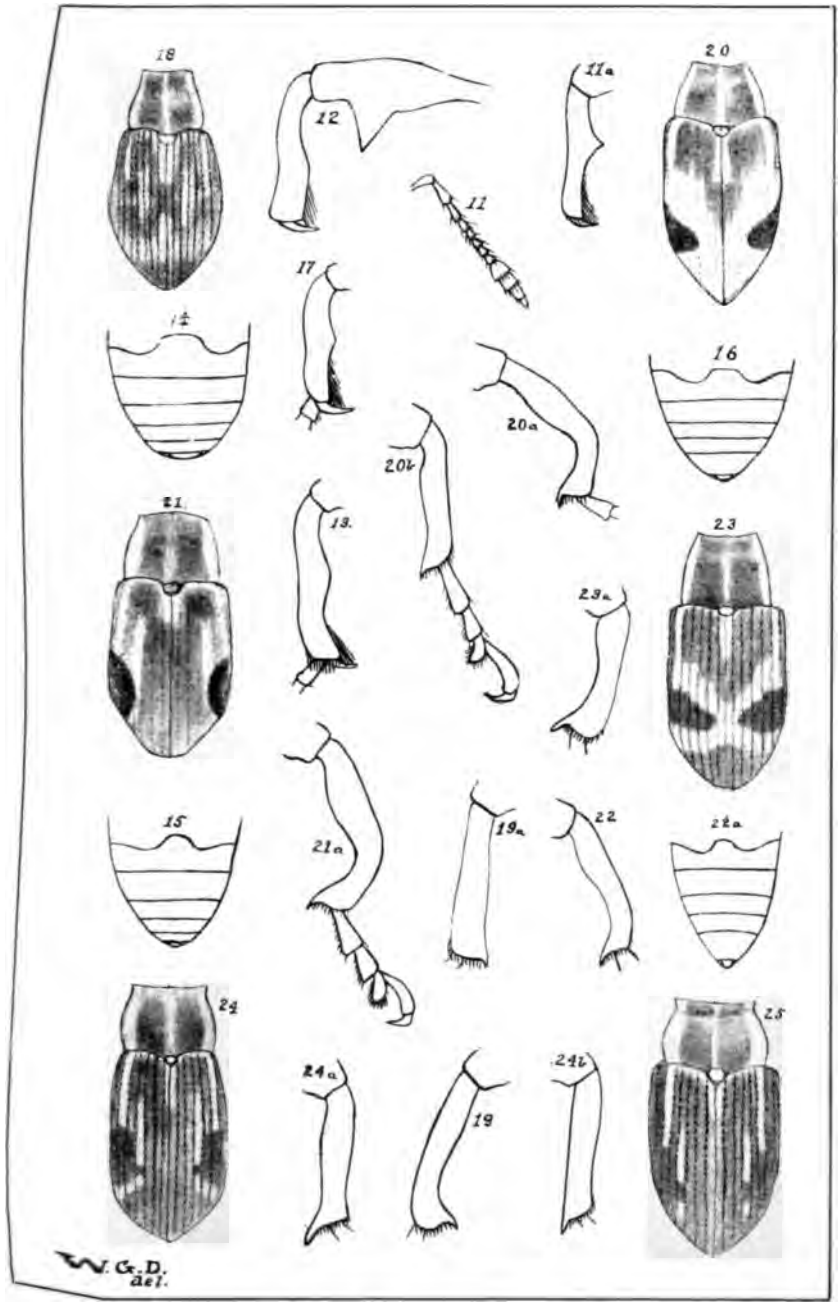
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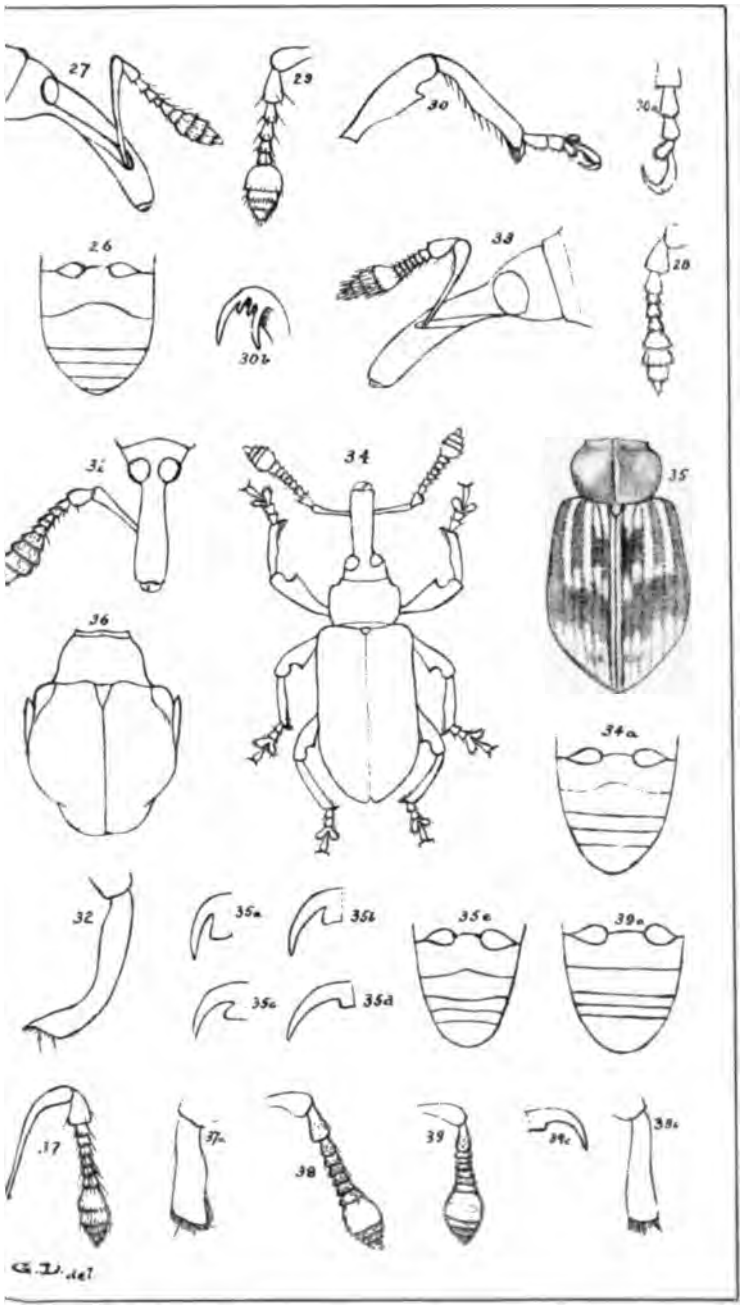
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The species of AGRILUS of Boreal America.

BY GEORGE H. HORN, M.D.

The first attempt at a comparative study of our species was made by Dr. LeConte in his "Revision of the Buprestidæ of the United States (Trans. Amer. Philos. Soc. xi, 1859)," in which thirty-two species were recognized and eight previously described enumerated as unknown. In this essay we find an important use of the form of the claws as the basis of a primary division of the genus in groups. Singularly the study of the claws was carried no further, owing probably to the small material which furnished the basis of the work. It is also to be regretted that but little attention was paid to the sexual characters, and, as if by accident, only an occasional allusion is made to the form of the prosternal lobe. Of the thirty-two species described, twelve were represented by single examples, and of the remaining twenty nearly half were represented by not more than two. While this condition rendered the study at the time easy and satisfactory, the further accumulation of material makes it absolutely necessary to refer to the types for determination.

In 1873 (Proc. Acad. Nat. Sci. Phil.), Mr. G. R. Crotch attempted a brief review of our species, which is notable for the insufficiency of his comments in one portion of the paper and the numerous inaccuracies throughout, especially in the analytical table. The value of the carina of the pygidium was first recognized in his paper, and some attempt made to use the sexual characters as a means of separating the species.

The species of the regions to the south of our limits have been studied by Mr. Waterhouse (Biol. Cent. Amer. vol. ii, pt. 1) with fairly good results, but the species of that region are so entirely different from our own in facies and depend for their separation on characters not applicable in our fauna, that his work has been of no assistance in the preparation of this. In this essay Mr. Waterhouse has separated one of our species (*pulchellus*), which has an equivalent in Mexico, from *Agrilus* under the name *Engyaulus*, but for reasons which will be found under our species, the genus is not considered well founded.

The species described by Gory are barely recognizable, and the figures give but little aid. He seems not to have known of the species described by Say, or else purposely disregarded them.

It being very evident that the unsatisfactory work previously done with our species was due to insufficient material, and the neglect of an examination of the sexual characters, no attempt has been made by me to record my observations until reasonably full series had been obtained with the sexes of each species represented. In the following pages but one species is represented by a single specimen, and of about four others two of each have been examined.

As a general rule, our species are not marked by any great surface irregularities, such as deep thoracic depressions and strongly elevated elytral costæ. The only exceptions are *cavatus* and *Couesii*, the former being represented in Mexico and the other may also be. At tip the elytra are simply acute or rounded, never divergent, and variously formed as in many of the Mexican species. The colors are never very brilliant, nor is the ornamentation by pubescent spots very striking. The monotonous aspect of our species has compelled a search for structural characters with very encouraging results, for with such characters, the limits of species may be more accurately defined notwithstanding any variation which may occur.

In order that the systematic portion of this work may be the better understood, the various portions of the body showing important modifications will be reviewed consecutively.

ANTENNÆ.—The form of these organs seems to have been entirely neglected. In some species the antennæ are slender and long (Pl. viii, figs. 11–13), in others short and comparatively stout (Pl. viii, figs. 12–14), in the former case the joints are longer than wide, and in the latter as wide, or even wider than long. The most important modification observed is in the mode of their serration. By far the larger number of our species have the antennæ serrate beginning with the fourth joint (Pl. viii, figs. 11, 12); in the others the serration begins at the fifth joint (Pl. viii, figs. 13, 14). There may be at times a question with those who study this character for the first time and in some species it might be difficult to determine to which series it should be referred, but whenever the fourth joint resembles the fifth more nearly than it does the third, the species belongs to the first series, but when the third and fourth joints are similarly cylindrical then the species belongs to the second series.

HEAD.—The front may be flat, moderately convex, or very convex. In the latter case the mouth seems more retracted and inferior, as will be observed in the species from *pulchellus* to *muticus*, but varying in degree, so that this character fails to be useful for generic separation. In nearly all the species the head has a median impressed line beginning at the occiput, but this varies both in extent and depth, forming in several species a deep frontal depression or even concavity. The clypeus varies somewhat in form, but not to the extent observed in Chrysobothris, so that no use has been made of it in the table. Sexually the head varies in sculpture and color, as will be found recorded, but the differences between the sexes are not by any means as well marked as in Chrysobothris, or in the more closely allied Anthaxia. Other characters of more restricted occurrence will be found under the species in which they occur.

PROTHORAX.—The usual thoracic characters based on color, sculpture and the depressions require no special comment. The carina of the hind angles has nearly always been mentioned from the earliest descriptions, and its presence or absence regarded as an infallible sign of specific distinction. It remains now to be recorded that in a number of species the presence or absence of the carina is often purely sexual, the male being without it. This is well shown in a series of *acutipennis*. In all cases the presence or absence of carina must not be assumed to be of specific value, except when accompanied by other characters.

The lateral marginal edge of the thorax assumes two forms when viewed from the side, the sinuate and straight. The former is the more usual, and is well illustrated by *macer* (Pl. viii, fig. 9), while the straight form is mostly seen in the cylindrical species, such as *lucustris*, etc. (Pl. viii, fig. 10).

PROSTERNUM.—The prosternal lobe varies in length and form, sometimes almost entirely concealing the mouth. Its anterior margin may be broadly rounded as in *cavatus* (in which the mouth is nearly concealed), truncate as in *bilineatus*, or emarginate, as is the more usual occurrence. Various forms of emargination will be observed, the most irregular being in *difficilis*, in which the notch is small, and on each side there is a sinuation.

The tip or apex of prosternum is subject to great modification. In many species the tip is continuous with the intercoxal portion and enters the metasternum by a triangular notch, while in others the tip is abruptly bent upwards and enters the metasternum concealed.

This structure has been well described by Mr. Waterhouse. When the tip of the prosternum is closely applied to the metasternum, the portion of the apex not concealed assumes various forms, being triangular, rounded, truncate or dilated (see *muticus* and species near). For convenience of expression in the analytical table, the visible free portion has been assumed to be the tip, and is so spoken of in the table.

SCUTELLUM.—The two forms observed are characterized by the presence or absence of a transverse carina. This structure seems to have been considered as invariable as the angular carina of the thorax, but in several of our species the carina may be distinctly present in some specimens and entirely absent in others.

ELYTRA.—In nearly all of our species the sides of the elytra are slightly sinuate behind the humeri, and then more or less dilated before finally narrowing to the apex (Pl. viii, fig. 7), but in many others the elytra narrow from the humeri to the apex almost without sinuation as in *difficilis* (Pl. viii, fig. 8). In the former case the sides of the abdomen are much less visible from above than in the latter. As a rule the elytra are narrower in the male. The disc is not often costate and then only in the species of the tropical type, as in *Cousii*, *cavatus* and *macer*, but in very many species there is on each elytron a very vaguely indicated costa.

The surface sculpture is practically the same in type in all our species, and is derived from a form described as imbricated, resembling, when magnified, a series of pointed tiles, closely placed, in which the points are somewhat elevated. The sculpture in some species might be described as closely mucronate.

The apices of the elytra are not, in any of our species, provided with the curious prolongations and modifications seen in the tropical forms. The tip is rarely very acute (*nevadensis*), usually rounded. The edge is usually serrulate, and in a few species entirely simple (*muticus*, etc.).

PYGIDIUM.—In very nearly all our species the pygidium is provided with a median smooth or elevated line, in many species forming quite a ridge, and in a good number the ridge is prolonged, forming a spine sometimes emarginate at its apex (*macer*). The presence or absence of the prolongation is one of the most constant of the structural characters, although specimens of *ruficollis* are occasionally seen without it. The pygidium of *pulchellus* is acute at tip, the carina well marked, but not independently projecting.

ABDOMEN.—The principal modifications of the abdomen are due to sexual peculiarities of the male, which are sufficiently described under the species in which they occur. Several peculiarities have been observed which are not sexual. In *ventralis* the middle of the posterior edge of the second segment is free and prolonged slightly over the next segment; the same is observed in the third segment, but in a less degree. The sides of the last ventral segment are usually simple, but in a few species (*obolinus*, *Walsinghami*) the edge is distinctly serrulate. The apex of the segment is rounded or oval, except in a few species (*concinnus*, *acutipennis*), in which it is truncate. In none of our species is the last ventral emarginate, as in many European species.

Along the side of the abdomen there will be observed a well elevated ridge, which is sometimes interrupted on the first or second segments, usually more or less sinuous in front. Although variable within certain limits it is not sufficiently so to warrant any use of it in the grouping of species. This line divides the ventral segments, so that the upper portion, usually sub-elytral, has been called, for convenience, the "vertical portion of the segments;" it is often differently clothed from the inferior part of the segment.

The suture between the first two segments is usually entirely obliterated, but in *Walsinghami* is visible at the sides; in some specimens of *acutipennis*, and more rarely *bilineatus*, the suture is faintly indicated. The presence of this suture has afforded Mr. Waterhouse the means of separating a small number from the mass of species in Mexico.

LEGS.—The legs in all the species are slender, and afford very few characters useful in separation. In a good number sexual differences have been observed in the tibiæ, consisting of a short spine or mucro at the inner apical angle of the anterior tibia and sometimes (*otiosus*, etc., Pl. viii, fig. 18) on all the tibiæ of the male; the female tibiæ are simple in all the species. The tarsi vary, apparently, in length. Apparently, because in estimating their length some comparison must be made with adjacent parts, and it will be found in nearly every case the tarsi bear the same relation in length to the tibia.

The claws vary greatly in form, affording useful characters in grouping the species, although the demarcation is not so sharply defined as to render differences primarily useful.

In no case are the claws simple, or even approaching that condition. Mr. Crotch remarked that while the claws of many European species

were bifid, they were not so in any American form that he had seen. It seems to me that a careful homological study of the claws shows that in all our species these members are either bifid, or of a modified bifid form. While they are usually called cleft, there is no truly cleft claw in any species. If we examine the species related to *politus* and those near *torpidus*, the claws will be found so nearly of the true bifid type that they should be called so. Tracing the modifications of this form it will be observed that the inner member of the bifid tip gradually shortens and broadens, while it preserves its lateral position in relation to the other part, although becoming quite a broad tooth.

It seems not to have been noticed that in the group above indicated the claws are not only different in the two sexes, but, especially, in the male, different on the three pairs of feet. This effectually prevents anything but the most restricted use of the forms of the claws in separating either groups of species or species themselves.

As the descriptions of the modifications of the claw would be an unnecessary repetition at this time, the student is referred to the remarks under each species.

At this time I desire to acknowledge the assistance received, without which this essay would have fallen short of its present completeness. The Museum of Comparative Zoology has permitted the free use of the LeConte collection for comparison, without which the names here used would have less certain value. The National Museum, through its Curator, Dr. C. V. Riley, has loaned its material, which has in one case removed a doubt from my mind, and in several others prevented the necessity of describing from uniques. The cabinet of the American Entomological Society has also been freely used. To Messrs. Ulke, Liebeck, Seeber, Wenzel and Henshaw, I am indebted for the free use of their material and the gift of specimens. Finally, to Mr. Fred. Blanchard, of Lowell, I am under especial obligations for his many useful suggestions, and for his having very kindly studied several difficult questions regarding the *otiosus* series on the carefully collected material in his cabinet.

The meaning of the expressions used in the subsequent pages of the essay having been sufficiently explained, the following table is presented to enable the species to be, at least approximately, determined. The arrangement of the species by the sequence in the table does not in all cases approximate those having a superficial resemblance. The object of this study is to enable the determination of

the species and the minor detail of a cabinet arrangement can be left to the judgment of those who possess a sufficient number to make it desirable.

Analytical table of Agrilus.

Antennæ serrate beginning at the *fourth* joint. Pl. viii, figs. 11, 12.....2.
Antennæ serrate beginning at the *fifth* joint. Pl. viii, figs. 13, 14.....24.
2.—Claws cleft in such a manner that the lower portion is turned inward, nearly or quite touching that of the opposite side. Pl. viii, fig. 15.....3.
Claws simply cleft, or even almost bifid, the lower portion not inverted. Pl. viii, figs. 16, 17..... 8.
3.—Prosternum parallel between and behind the coxæ, the apex obtuse or truncate.....4.
Prosternum gradually narrowing, the apex acute.....6.
4.—Front flat, occiput feebly impressed; thorax not impressed at middle, carina of hind angles distinct, the marginal line (seen laterally) sinuous; pygidium carinate, not projecting.....**difficilis.**
Front concave, or deeply impressed; median line of thorax more or less deeply impressed, the carina feeble or absent.....5.
5.—Front impressed from the occiput to the clypeus; thorax with a rather broad and deep median impression, marginal line straight; pygidium carinate, not projecting; color dull bronze.....**obtusus.**
Front deeply concave; median line of thorax impressed, marginal line sinuous; pygidium feebly carinate; head and thorax cupreous, elytra black .....**fuscipennis.**
6.—Pygidium carinate, the carina prolonged at tip.
Front deeply impressed; hind angles of thorax not carinate in either sex. **ruficollis.**
Front feebly impressed; hind angles of thorax feebly carinate in female. only.....**lateralis.**
Pygidium not carinate, at most a smooth median line.....7.
7.—Scutellum distinctly transversely carinate; hind tarsi slender, very nearly as long as the tibia.
Tibiæ of male on all three pairs of feet mucronate at the inner apical angle.
Males flattened on the median line of under side and usually pubescent. Pl. viii, fig. 18.....**otiosus.**
Males with the last ventral truncate and fimbriate.....**defectus.**
Antennæ very slender, ciliate on the posterior side with relatively long hairs in both sexes.....**crinicornis.**
Posterior tibiæ of males not mucronate; sometimes all three pairs are scarcely mucronate.
Head not, or feebly impressed.
Males with a densely pubescent space on the prosternum. **masculinus.**
Males with prosternum slightly pubescent.....**arcuatus.**
Head deeply impressed (facies of *ruficollis*).....**cupricollis.**
Scutellum not transversely carinate; hind tarsi rather stout, obviously shorter than the tibiæ; form robust; elytra scarcely serrate at tip. **angelicus.**

8.—Pygidium with a projecting carina ..... 9.
Pygidium without a projecting carina ..... 15.
9.—Elytra with a well defined costa ..... **mucer.**
Elytra without distinct costa ..... 10.
10.—Front deeply impressed; head and thorax coppery red, elytra black; hind angles of thorax not carinate.
Pro-, meso- and metapleuræ and coxæ densely pubescent ..... **audax.**
Pleuræ and coxæ not pubescent ..... **vittatocollis.**
Front convex, or feebly impressed; color uniform ..... 11.
11.—Sides of thorax with yellowish pubescence, elytra with a vitta of similar color; hind angles of thorax not carinate ..... **bilineatus.**
Thorax and elytra without pubescent spaces ..... 12.
12.—Elytra with more or less evident pubescent spots, or with small, densely, finely punctured spaces indicating them ..... 13.
Elytra without pubescent spaces ..... 14.
13.—Last ventral segment oval at tip; second segment only, of male, feebly grooved.
Apices of elytra very acute; underside of body not conspicuously pubescent; scutellum not carinate ..... **nevadensis.**
Apices of elytra of usual form; sides of body beneath conspicuously clothed with dense white pubescence; scutellum transversely carinate ..... **niveiventris.**
Last ventral segment obtuse or truncate; the first two ventrals of male grooved ..... **granulatus.**
14.—Last ventral segment obtuse or truncate.
First ventral of male flat, second grooved ..... **pensus.**
First and second ventrals of male with a smooth and deep groove. **Blanchardi.**
Last ventral segment oval at tip.
Hind angles of thorax carinate in both sexes; first ventral of male broadly grooved, the second more deeply, the groove narrow and smooth **anxius.**
Hind angles of thorax not carinate, at most an obtuse elevation; first ventral of male nearly flat, the second with a deep smooth groove. **acutipennis.**
15.—Thorax with a deep and broad, somewhat oval depression; front concave 16
Thorax with, at most, a simple, straight, median impression 17
16.—Elytra costate and with pubescent spots; hind angles of thorax feebly carinate.
Scutellum concave, without transverse carina; elytra with a well marked costa, nearly entire ..... **Couesii.**
Scutellum transversely carinate; elytral costa feeble and not entire. **cavatus.**
Elytra not costate and without pubescent spots, hind angles of thorax not carinate; scutellum not carinate; last ventral truncate. **concinnus.**
17.—Suture between the first two ventrals plainly indicated at the sides; last ventral serrulate.
Thorax grooved at middle; elytra ornate, with pubescent spots; pygidium obtuse ..... **Walsinghami.**

Thorax not grooved: elytra not ornate, with pubescent spots pygidium subacute ..... **pulchellus.**

Suture between the first two ventrals entirely obliterated at the sides.....18.

18.—Scutellum not carinate; pygidium feebly carinate.....19.

Scutellum transversely carinate.....20.

19.—Prosternal lobe truncate or emarginate.

Prosternum at tip obtusely rounded; elytra at tip not distinctly serrulate; thorax with deep median impression ..... **obolinus.**

Prosternum at tip emarginate; elytra at tip not serrulate; last ventral feebly serrulate; thoracic depression feeble..... **muticus.**

Prosternal lobe rounded, the tip squarely truncate; elytra scarcely serrulate at tip; no thoracic depression, hind angles feebly carinate. **jacobinus.**

20.—Elytra with pubescent spaces.....21.

Elytra without pubescent spaces; prosternal lobe truncate, or feebly emarginate; claws of front tarsi of male nearly bifid..... **politus.**

21.—Prosternal lobe deeply emarginate.....22.

Prosternal lobe entire..... **fallax.**

22.—First joint of hind tarsi longer than half the tibia; legs and antennæ slender..... **obsoletoguttatus.**

First joint of hind tarsi not as long as half the tibia; legs and antennæ of usual form.....23.

23.—Hind angles of thorax sharply carinate, the median thoracic depressions feeble..... **scitulus.**

Hind angles of thorax without trace of carina, disc convex, without depression; entire apical third of elytra with whitish pubescence. **ornatulus.**

Hind angles of thorax not carinate, disc convex, without depression; elytra with an indistinct subsutural vitta; second and third ventral segments slightly prolonged at middle over the following segments. Pl. viii, figs. 21, 22..... **ventralis.**

24.—Hind angles of thorax not all carinate.....25.

Hind angles of thorax distinctly carinate.....28.

25.—Upper surface with pubescent spots or spaces.....26.

Upper surface without pubescent spaces.....27.

26.—Thorax convex, with at most a feeble median depression, sides scarcely explanate.

Thorax simply punctate, no median depression, sides clothed with white pubescence; on each elytron a white vitta..... **blandus.**

Thorax very roughly strigose, a feeble median impression, not pubescent at sides; elytra with three faint spots each side..... **abjectus.**

Thorax slightly depressed, the sides slightly explanate, surface distantly strigose, a moderately deep and broad median impression; elytral pubescence forming a distinct design..... **subcinctus.**

27.—Elytra vaguely costate; thorax transversely strigose and punctate; lower angle of eye acute; scutellum carinate..... **putillus.**

Elytra not at all costate; thorax very obliquely strigose, with a reticulate appearance, not punctate; lower angle of eye rounded, scutellum not carinate..... **abstersus.**

28.—Lateral marginal line of the thorax, as seen from the side, sinuous; elytra more or less ornate, with pubescent spots (except in some *addendus*). Pl. viii, fig. 9.....29.

Lateral margin of thorax straight, deflexed only in front; elytra without pubescent spots. Pl. viii, fig. 10.....31.

29.—Front more or less concave and very distinctly impressed.....30.

Front convex, not impressed.

Prosternal lobe deeply emarginate.....**LeContei.**

Prosternal lobe entire, rounded or obtuse.

Thorax transversely strigose; elytral pubescence forming a design.
abductus.

Thorax finely and very obliquely strigose, shining; elytra spotted as in *fallax*.....**palmacollis.**

30.—Elytra vaguely channeled, the groove densely punctured and with a pubescence forming a not dense vitta.....**felix.**

Elytra not channeled, the pubescence arranged in three spots as in *fallax*.31.

31.—Pygidium carinate in both sexes.....**impexus.**

Pygidium not carinate.....32.

32.—Head not roughly sculptured, punctate, the punctures forming striæ; color æneo-cupreous, as in many *politus*.....**floridanus.**

Head roughly strigose, more pubescent and opaque, color dull bronze, as in *fallax*.....**addendus.**

33.—First two ventral segments of male conspicuously channeled and pubescent: the median line of body in male pubescent.....**laeustris.**

First two ventral segments of male flat or feebly channeled, not pubescent.....34.

34.—Antennæ slender, joints longer than wide.....**egenus.**

Antennæ shorter, the serrate joints wider than long.....35.

35.—Posterior border of hind coxal plate bisinuate, the outer free angle acute and somewhat prolonged; disc of thorax not transversely depressed prosternal lobe not emarginate.

Head coarsely punctate; thorax without median depression; prosternal lobe rounded.....**imbellis.**

Head very indistinctly punctate in both sexes; thorax with feeble median groove; prosternal lobe truncate or feebly emarginate....**abditus.**

Posterior border of hind coxal plate rectilinearly truncate, the free angle rectangular and not prolonged; disc of prothorax transversely depressed posteriorly; prosternal lobe emarginate.....**pusillus.**

In order that there may be no misunderstanding, the species described by Say have been thought worthy of special reference, so that some previous erroneous determinations may be corrected.

For convenience the species will be given in the order described, and reference made to "The complete writings of Thos. Say on the Entomology of North America," edited by John L. LeConte, M.D., under the abbreviated title, "edit. Lec."

Buprestis bilineata, vol. i, p. 386. In vol. ii, p. 596, is correctly attributed to Weber.

Buprestis arcuata, vol. i, p. 387. Again referred to vol. ii, p. 596. Subsequently described as *torquatus* Lec.

Buprestis polita, vol. i, p. 387; vol. ii, p. 596.

Buprestis pusilla, vol. i, p. 388; vol. ii, p. 596. For this the name *parvus* Saund. was unnecessarily suggested.

Buprestis lateralis, vol. ii, p. 103. also p. 596. This species was not identified by LeConte. The name *Sayi* Saund. was unnecessarily suggested for it.

Buprestis granulata, vol. ii, p. 104. The description of this species was amended on p 596. Was at one time supposed to be *quadriguttatus* Gory.

Buprestis geminata, vol. ii, pp. 105 and 595, is the female of *otiosus*. See remarks below.

Agrilus ruficollis, Fab. vol. ii, p. 595. From this time Say calls all the species *Agrilus*.

Agrilus geminatus, vol. ii, p. 595; see above.

Agrilus politus, vol. ii, p. 596: see above.

Agrilus arcuatus, vol. ii, p. 596; see above.

Agrilus granulatus, vol. ii, p. 596; see above.

Agrilus bilineatus Weber, vol. ii, p. 596; see above.

Agrilus lateralis, vol. ii, p. 596; see above.

Agrilus pusillus, vol. ii, p. 596; see above.

Agrilus fallax, vol. ii, p. 596.

Agrilus putillus, vol. ii, p. 597, was unknown to LeConte.

Agrilus otiosus, vol. ii, p. 597. This is clearly the male of *geminata*, described about thirteen years previously, but as the more recent name has been adopted, and in general use everywhere, it has been retained for the species. As Say described both, and as one or the other must be a synonym, it seems to matter but little which one is suppressed.

A. difficilis Gory.—Form elongate, piceous, with a faint greenish or cupreous surface lustre. Antennæ piceous, slightly bronzed, reaching beyond the middle of the thorax, serrate from the fourth joint; front flat, closely coarsely punctate, obsoletely bituberculate and with short pubescence, occiput slightly impressed. Thorax broader than long, slightly narrowed at base, sides slightly arcuate, the marginal line from the side slightly sinuous, disc convex, a feeble oblique lateral concavity, a faint ante-scutellar depression, surface rather finely transversely strigose, punctate at apex, hind angles with a rather strong arcuate carina; scutellum transversely carinate; elytra narrow, scarcely dilated behind the middle, apices rounded and serrulate, basal fovea rather feeble, disc convex, with faint costa, the surface punctate, but not close, becoming imbricate near the apex; body beneath with more decided metallic lustre; prosternal lobe rounded, with an acute emargination at middle, the inter-coxal process broad, parallel and obtuse at tip; prosternal pleuræ punctate and pubescent, meso- and metasternum at sides more densely punctate and similarly pubescent, along the middle much smoother; ventral segments along the middle sparsely punctate, first segment at sides densely punctate, strigose; the second, third and fourth segments with a more densely punctate spot conspicuously pubescent, the vertical portions of all the segments pubescent in front; pygidium coarsely sparsely punctate, with a median carina not projecting; claws similar on all the feet. Length .36—.52 inch.; 9—13 mm.

Male.—Front flatter, more densely, but more finely punctate, usually greenish in color; prosternum densely punctate along the middle with quite fine, sub-erect, silken pubescence; metasternum convex; ventral segments similar in the sexes, not impressed.

Female.—Front more coarsely punctate, color more or less cupreous; prosternum rather coarsely, not closely punctate, not pubescent.

Variations.—The only variations noted are those of size and color, which do not change the aspect of the species in any great degree.

Of the habits of this species nothing has been recorded. This is one of the larger species in our fauna, although several exceed it in size.

The claws are cleft, and with the lower portion incurved, as required in the group, although less incurved than usual, so that the points are quite distant. This divergence from the type of the group is the more marked in the male, the claws of the other sex being nearly contiguous.

Hab.—Occurs in the Mississippi Valley from Missouri to Texas.

A. obtusus n. sp.—Form robust, obscure æneous, opaque. Antennæ short, serrate from the fourth joint, slightly cupreous; head densely coarsely punctate, slightly strigose on the occiput, longitudinally impressed from the occiput to the clypeus. Thorax broader than long, slightly narrowed in front, sides straight, arcuate near the front, lateral line not sinuous, base slightly broader than the humeri, a moderately deep impression behind the front angles, which is entirely lateral, median line rather broadly and deeply concave, hind angles not carinate ♂, obsoletely carinate ♀; surface coarsely, closely and irregularly strigose, the intervals between the ridges punctate; elytra broadest at base, scarcely dilated behind the middle, apices separately rounded, scarcely serrulate, basal depressions almost obliterated, disc rather flat, vaguely concave along the middle of each side; surface densely granulate, strigose; body beneath similar in color, but very obtuse, intercoxal process rather broad, parallel and very obtuse at apex, propleurae coarsely punctate, slightly strigose; abdomen finely punctate at middle, more densely and roughly at the sides, the lateral marginal line entirely obliterated on the first two segments; pygidium punctate, indistinctly carinate; claws similar on all the feet. Length .36 inch.; 9 mm.

Male.—Prosternum densely punctate and rugulose sparsely, finely pubescent. Ventral segments not impressed.

Female.—Unknown.

The two specimens before me show no variation.

The entire obliteration of the marginal line on the first two ventral segments is a character not observed elsewhere in our species.

In form and general appearance this species resembles *obolinus*, which is also remarkable in having the marginal line of the abdomen faintly indicated on the first segment.

Hab.—Texas, probably near the lower Rio Grande.

A. fusciperinis Gory.—Head and thorax cupreous, elytra black, opaque. Antennæ piceous with brassy lustre, nearly attaining the hind angles of the thorax, serrate from the fourth joint; head rather deeply concave from the occiput to the clypeus, closely coarsely punctate, slightly pubescent; across the base of the clypeus a slight carina, and above each antennal fossa a rather deep groove. Thorax nearly twice as wide as long, sides irregularly arcuate, lateral marginal line sinuous, disc irregularly convex; a broad, vague, lateral depression, median line rather broadly concave, slightly interrupted at middle, hind angles not carinate; surface with short, transverse, rather coarse strigæ, with granulate aspect at the sides; scutellum transversely carinate; elytra with slight posthumeral sinuation, behind which there is a slight broadening; apices rounded, minutely serrulate, basal depressions moderate, disc slightly flattened; surface closely, acutely granulate; body beneath more shining than above, olive-bronze, the sides of the sterna cupreous; prosternum rather broad between the coxæ, parallel, the apex obtuse, the lobe short and obtuse, propleuræ coarsely punctate, slightly strigose; metasternum coarsely punctate at middle, becoming strigose at the sides; abdomen rather coarsely and closely punctate, becoming strigose on the sides of the first two segments, the vertical portion of the segments sparsely golden pubescent their entire length; pygidium coarsely punctate, indistinctly carinate; claws similar on all the feet in both sexes. Length .40—.50 inch.; 10—12.5 mm.

Male.—Prosternum densely punctate and pubescent along the middle; metasternum convex; first ventral segment slightly depressed at middle posteriorly.

Female.—Prosternum more sparsely punctate and not pubescent, first ventral segment convex at middle, less closely punctate in the male.

Variations.—So few specimens have been collected that but little variation has been observed. The thorax is entirely cupreous, the median line more golden, and on each side of this is a longitudinal space of darker color, which varies in its intensity of color and extent.

Of its habits nothing is known.

Hab.—Tennessee and Georgia.

A. ruficollis Fab.—Black, or blue-black; head and thorax usually bright cupreous. Antennæ black, serrate from the fourth joint, the serrate joints as wide as long; occiput rather deeply impressed, the line extending to the base of clypeus, occiput somewhat strigose, front simply punctate. Thorax broader than long, apex slightly wider than base, sides regularly arcuate, disc convex, a moderately deep, oblique lateral depression; another, feeble, in front of scutellum; surface, in a general manner, transversely strigose; hind angles without trace of carina in either sex; margin, viewed laterally, strongly sinuous; scutellum transversely carinate; elytra slightly sinuate behind the humeri, a little broadened behind the middle, nearly entirely concealing the sides of the abdomen from above, apices separately rounded, distinctly serrulate; disc flat, a basal depression on each side; surface closely subgranulate, opaque, without trace of

costæ; body beneath piceous black, with faint bronze surface, shining; prosternum obtusely lobed in front with deep transverse impression, the process gradually narrowed, acute at apex; surface coarsely punctate, more rugose posteriorly; metasternum granulate; abdomen granulate at base, the sculpture becoming rapidly finer toward apex, where the segment is finely or sparsely punctate; pygidium carinate, the carina projecting in a spine; the vertical portion of the ventral segments punctate and sparsely pubescent; claws similar on all the feet in both sexes. Length .22—.28 inch.; 5.5—7 mm.

Male.—Front more deeply impressed, less coarsely punctate; elytra not wider at the post-median expansion than at the humeri; prosternum more coarsely punctate, metasternum slightly concave; first ventral segment concave along the middle, the second segment rather deeply grooved for three-fourths its length, the groove smooth.

Female.—Front flatter, more closely punctate, less deeply grooved; elytra wider at the posterior dilatation than at the humeri; prosternum more sparsely punctate, metasternum convex; first two ventral segments not grooved, the surface smoother than in the male.

Variations.—The normal and most common form has the head and thorax of bright cupreous color, the elytra black, sometimes with a slight tinge of blue. The color of the head and thorax is, at times, quite brassy shading gradually to green. Specimens more rarely occur with these parts quite black, although with more gloss than the elytra. In all other characters excepting size, the species is remarkably constant.

Habits.—The larva of this insect feeds in the stems of Blackberry and Raspberry, emerging in the early Summer. An excellent article illustrating the injuries done, together with a figure of the larva, will be found in "Insects Injurious to Fruits," by Wm. Saunders (J. B. Lippincott Company).

Hab.—Occurs from Canada and the New England States southward to Virginia and westward to Missouri.

A. lateralis Say.—Form of *ruficollis*. Head and thorax cupreous; elytra black, with slight aeneous lustre. Antennæ piceous, slightly bronzed, scarcely attaining the middle of the thorax, serrate from the fourth joint; head impressed from the occiput to the clypeus, less deeply than in *ruficollis*, entire head rather coarsely and closely punctate. Thorax broader than long, not narrowed at base, sides moderately strongly arcuate, slightly explanate posteriorly, lateral edge slightly sinuous, hind angles with a slight tuberosity ♂, or subcarinate ♀; disc moderately convex, a vague median depression divided in two portions, a moderately deep oblique lateral depression; surface transversely strigose, subgranulate at middle in front; scutellum transversely carinate, less distinctly in ♂. elytra with a slight posthumeral sinuation, behind which there is a slight dilatation; basal depressions well marked, apices rounded, not distinctly serrulate.

disc moderately convex, without trace of costa; surface densely granulate, but less opaque than in *ruficollis;* body beneath piceous with æneous lustre; prosternal lobe slightly emarginate, the intercoxal process gradually narrowed, the tips acute; pro- and metapleuræ closely punctate, not pubescent; abdomen moderately closely punctate, more finely along the middle, more coarsely and roughly at the side of the first segment; pygidium coarsely punctate, carinate, the carina projecting at tip; claws similar on all the feet in both sexes, the lower portion of the cleft more nearly contiguous in the female. Length .25—.28 inch.; 6.25—7 mm.

Male.—Prosternum coarsely, not closely punctate, without pubescence; first ventral segment slightly depressed along the middle, second with a deep, smooth groove extending more than half its length.

Female.—Prosternum less punctate, smoother; first two ventral segments simple.

Four specimens have afforded the above description. Another specimen in Mr. Ulke's collection is of somewhat larger size, and with more even thorax, seems to belong here, although the discovery of the male may prove it distinct.

This species greatly resembles *ruficollis*, but may be distinguished by the less deeply impressed head and the presence of either a slight evidence, or a distinct carina, in the hind angles of the thorax. The sexual characters of the two are practically identical; several other species have also some resemblance, but these have no pygidial spine.

Habits.—The wood in which the larva lives is not known, but the imago has been taken on foliage of Poplar sprouts (Blanch. Ent. Am. v, p. 32, under the name *anxius*).

Hab.—Massachusetts (Blanchard), New Jersey (Liebeck), New Mexico (Ulke), Illinois (Dury), Missouri (Say).

A. otiosus Say.—Form slender, sometimes linear in the male, stouter in the female, usually dull greenish, sometimes slightly cupreous. Antennæ usually bluish, extending nearly to the hind angles of the thorax, a little shorter in the female, joints all longer than wide, serrate from the fourth joint; head viewed from above slightly convex, with a very slight occipital impression, front rather flat, coarsely and closely punctate, occiput faintly strigose. Thorax a little wider than long, slightly narrowed at base in the male, sides feebly arcuate, but more distinctly in the female, lateral edge straight ♂, or feebly sinuous ♀, hind angles obtusely or indistinctly carinate ♂, or usually with a well defined carina ♀, disc convex, an oblique lateral depression and on the median line two depressions, the posterior the larger; surface transversely strigose, with fine punctures between; scutellum transversely carinate; elytra slightly sinuate behind the middle, entirely concealing the abdomen from above, apices separately rounded, finely serrulate, elytra with a vague costa from the humeri behind the middle, between which the elytra are slightly flattened, and behind the middle the su-

tural edge is slightly elevated; basal depressions distinct; surface with a densely imbricate sculpture; body beneath usually bluish, more shining than above; prosternal lobe obtuse, vaguely emarginate, the intercoxal process gradually narrowed and acute at tip, propleuræ scabrous or subgranulate; metasternum coarsely punctate; abdomen punctate, more sparsely along the middle, quite coarsely along the side, the first segment quite rough; pygidium coarsely punctate, indistinctly carinate; tarsi slender, the first joint of the hind tarsi nearly half as long as the tibiæ; claws similar on all the feet in both sexes. Length .16—.22 inch.; 4—5.5 mm.

Male.—Form more slender, sometimes almost linear; front flatter, more densely punctured; hind angles of thorax less distinctly carinate; prosternum densely, finely punctate, finely pubescent, the pubescence usually extending along the median line of the body to the end of the second ventral segment; first two ventral segments vaguely sulcate on the median line. Inner apical angle of all the tibiæ spiniform and incurved.

Female.—Form stouter, usually with more evident æneous surface lustre; front slightly more convex, more coarsely, but less closely punctate, the occipital impression extending slightly downward; hind angles of thorax quite distinctly carinate; prosternum much more sparsely punctate, not hairy; first two ventral segments not impressed and with smoother sculpture.

Variations.—The most striking structural variation is the hind angles of the thorax. The sexual variation has already been recorded, but specimens are before me as completely deprived of carina as any species in our fauna, not only males but females also. The smaller and less developed males have the ventral sexual characters less pronounced, so that the pubescence along the median line becomes less distinct and the sulcus of the first two ventral segments almost entirely disappears. The color variations are not great, the males, however, are in a great part dull bluish, while the females are slightly greenish or cupreous.

As this is a common and well known species, much space has been given to its description as a means of comparison for other species. Say's *A. geminatus* is undoubtedly the female of this, subsequently described by him as *otiosus*. The former name has priority by several years, but the latter name is retained from its having acquired general acceptance, and from the fact that both belong to the same author and no injustice is done. This is clearly one of those cases in which the law of priority should yield to that of convenience.

Habits.—Feeding on Oak shrubs (Blanch. Ent. Am. v, p. 32). I think it has been reared from Hickory twigs by Dr. LeConte.

Hab.—Canada and New England States; westward to Kansas; southward to Texas.

A. defectus Lec.—Form and colors of *otiosus*. Antennæ attaining the middle of the thorax, the joints scarcely longer than wide, serrate from the fourth joint; head slightly convex, with scarcely a trace of occipital impression, front and occiput punctate. Thorax wider than long, not narrower at base, sides arcuate from apex to base, hind angles obsoletely carinate in both sexes, lateral margin very nearly straight, disc convex, a vague oblique depression at the sides, two depressions on the median line, but feebler than in *otiosus*: surface transversely strigose, the grooves punctate, more distinctly than in *otiosus*; scutellum transversely carinate; elytra sinuate behind the humeri with the post-median dilatation concealing the abdomen, apices rounded, finely serrulate, disc with scarcely a trace of costa, the sutural border elevated behind the middle, basal depressions feeble; surface imbricately sculptured, but smoother near apex; body beneath more shining, dull bluish green; prosternal lobe obtuse, vaguely emarginate, the intercoxal process gradually narrowed and acute at tip, propleuræ moderately closely punctate; metasternum not closely imbricate. Abdomen sparsely punctate along the middle, a little more closely at the sides; pygidium coarsely sparsely punctate, feebly carinate; tarsi slender, as in *otiosus*; claws similar on all the feet. Length .16—.18 inch.; 4—4.5 mm.

Male.—Front more opaque and finely punctate; prosternum coarsely, not closely punctate, rather opaque. First two ventral segments faintly grooved, but not pubescent; last ventral truncate, with a marginal fringe of hairs, curved and directed downward. Inner apical angle of all the tibiæ spiniform, slightly incurved.

Female.—Front more shining and more evidently punctate; prosternum more shining. First two ventrals not grooved, last ventral oval at tip, not fimbriate.

Of the habits of this species I have no information. The only variations observed are those of color as in *otiosus*, the females rather more brassy.

There can be very little doubt that this species was originally instituted to contain all the small specimens of *otiosus* in which the carina of the hind angles of the thorax is nearly or quite wanting. An examination of the series showed, however, that, abstracting the true *otiosus*, there remained specimens, one of which bore the type label, which clearly indicated a distinct species. They were, however, females. A few days later Mr. Blanchard gave me a male, which was clearly a mate for the type. As might be inferred from the preceding remarks, the species very closely resembles small or starved specimens of *otiosus*. There need be no difficulty, whatever, in separating the males from any Agrilus in our fauna, but the females are more difficult. It will be observed, however, that in the

present species the median line of the abdomen is very smooth, almost without punctures. In fact, the entire abdomen is less sculptured than usual. When once a male is obtained there will be no great difficulty in separating the female from *otiosus*.

It is evident that LeConte had before him a male of this species which he mistook for the male of *lacustris*, but I failed to find the specimen at present associated with that species, and discovered that it had been removed and placed with the present species either by himself, or later by Crotch.

Hab.—Massachusetts (Blanchard); also near Philadelphia.

A. crinicornis n. sp.—Form slender, as in *otiosus*, color olive-bronze with a slight bluish tinge at the sides, slightly shining. Antennæ slender, bluish, passing the hind angles of the thorax, joints all longer than wide, serrate from the fourth joint, fimbriate on the posterior side with comparatively long, sparsely placed hairs; front rather flat, a slight occipital depression, subopaque, sparsely punctate, occiput faintly strigose. Thorax wider than long, slightly narrowed at base, sides arcuate, margin slightly sinuous, hind angles not at all or very feebly carinate, disc moderately convex, a deep oblique lateral and two median depressions as in *otiosus*; surface indistinctly transversely strigose on the disc with intervening punctures, at sides in front punctate; scutellum transversely carinate; elytra sinuate behind the humeri, slightly broadened behind the middle, apices very obtuse, serrulate, disc with a vague costa, the intervening space slightly flattened, sutural edge elevated behind the middle, basal depressions moderate, surface closely imbricately sculptured, rougher near the base; body beneath more shining than above, blue; prosternal lobe obtuse, vaguely emarginate, the intercoxal process gradually narrowed, acute at tip, propleuræ opaque, scabrous; metasternum more roughly scabrous. Abdomen sparsely, finely punctate at middle, more coarsely at the sides; pygidium coarsely punctate, not at all carinate; tarsi slender, claws similar on all the feet. Length .17 inch.; 4.25 mm.

Male.—Front subopaque, alutaceous, sparsely punctate; prosternum rather flat, opaque, sparsely punctate, not pubescent; first two ventral segments rather flat, not grooved nor pubescent; inner apical angle of the tibiæ spiniform and slightly incurved.

While closely related to *otiosus*, the male gives evidence that the species is quite distinct. Females have not, with certainty, been separated, consequently it is not possible to assert that the pilosity of the antennæ is peculiar to the male.* The antennæ are certainly longer and more slender than any species in the vicinity of *otiosus*.

Hab.—Massachusetts (Blanchard), Pennsylvania (Liebeck), Illinois (Strumberg), Virginia (Ulke).

* Since the above was written females have been obtained having the antennæ similarly pilose.

A. masculinus n. sp.—Form rather slender, but more robust than *otiosus*, color dull green or slightly brassy, feebly shining. Antennæ greenish, serrate from the fourth joint, these longer than wide, tip reaching the hind angles of the thorax; head slightly convex, a very feeble occipital impression, more distinct in the female, front densely punctate, occiput slightly strigose. Thorax wider than long, slightly narrowed at base, sides in front arcuate, a slight sinuation posteriorly, lateral margin sinuate, hind angles with a sharply defined carina in both sexes, disc convex; an oblique, but not deep impression at the sides, two depressions on the median line as in *otiosus*, but much less distinct; surface not coarsely transversely strigose, with fine punctures on the intervals; scutellum transversely carinate; elytra slightly sinuate behind the humeri, then somewhat dilated, concealing the abdomen, apices rather obtusely rounded, finely serrulate, disc with a vague costa on each side, the intervening space rather flat, sutural margin elevated behind the middle, basal depressions shallow, surface closely imbricately sculptured; body beneath more shining than above; prosternal lobe obtuse, broadly and rather deeply emarginate, the intercoxal process gradually narrowed, acute at tip, propleuræ closely punctate; metasternum at sides densely submuricately sculptured. Abdomen closely punctate, and on the first two segments denser and submuricate; pygidium sparsely punctate, indistinctly carinate; hind tarsi slender, as long as the tibiæ, the first joint as long as the four following; claws similar on all the feet in both sexes. Length .24 inch.; 6 mm.

Male.—Front flatter, more opaque and more densely punctured, usually greenish; prosternum with a space in front densely covered with short erect pubescence, the intercoxal process smoother, with a median longitudinal elevation. First two ventral segments flattened, or vaguely concave along the median line, not pubescent. Inner apical angle of the front and middle tibiæ spiniform and incurved, posterior tibiæ simple.

Female.—Front more convex, more coarsely and less densely punctate, usually brassy; prosternum not hairy, the intercoxal process flat. Abdomen not impressed, and less roughly sculptured.

Of the habits of this species I have no information. The four specimens examined show no variation beyond that given in the detailed description.

It is highly probable that this species is mixed with *otiosus* in those collections possessing it. In fact, so great is the superficial resemblance that with ordinary comparison they could not be separated. The males are, however, easily separated by the pubescent area at the front of the prosternum. The median subcariniform elevation of the intercoxal process bifurcates about the middle of the sternum like a broad letter Y, and in the bifurcation behind the emargination of the lobe the pubescent area is placed. The females, if I have correctly separated them, are not so easily distinguished from the larger females of *otiosus*, but I observe that in both sexes the elytra

are much more obtuse at apex than in that species, and the sutural angle rather better defined.

Hab.—Canada, New York and Illinois. The two supposed females are from Mt. Tom and Tyngsboro, Mass., and were collected by Mr. Blanchard, who separated them as not being fully in accord with normal females of *otiosus*.

A. arcuatus Say.—Moderately elongate, not more robust than *rufitarsis*; head and thorax brassy, cupreous, or slightly greenish; elytra varying from dark olivaceous to bright brassy or cupreous. Antennæ piceous, slightly brouned, passing the middle of the thorax, serrate from the fourth joint; front moderately impressed from the occiput nearly to the base of the clypeus; surface coarsely, moderately closely punctate, somewhat strigose on the occiput. Thorax one-fourth wider than long, not narrowed at base; sides regularly arcuate, the margin slightly sinuous, disc convex, the median line with an anterior and posterior depression, an oblique depression at the side nearly reaching the median line; surface transversely strigose, with punctures in the depressions and more numerous near the apex, hind angles with an arcuate carina, rather sharp ♀, or obtuse ♂; elytra slightly sinuate behind the humeri and dilated behind the middle, nearly concealing the abdomen, apices separately rounded, finely serrulate, disc slightly flattened at middle, basal depressions moderately deep, sutural ridge elevated behind the middle; surface rather densely imbricate, but not opaque; body beneath usually cupreous; prosternal lobe broadly emarginate, the intercoxal process gradually narrowed, acute at tip, propleuræ scabrous, slightly strigose; metasternum coarsely punctate-strigose. Abdomen moderately finely punctate, more coarsely at the sides of the first two segments; pygidium coarsely punctate, not carinate. Length .20—.36 inch.; 5—9 mm.

Male.—Front flatter and more usually greenish, the impression less defined; prosternum closely punctate and slightly pubescent; metasternum longitudinally impressed; first ventral segment slightly flattened, not hairy; anterior and middle tibiæ with a slight mucro at the inner apex, the posterior simple.

Female.—Head more convex, the frontal impression deeper and sometimes bifurcate near the clypeus, color coppery or brassy; prosternum more shining, less closely punctate, not hairy; metasternum feebly impressed; abdomen simple; tibiæ not mucronate.

Variations.—The variations of this species are so pronounced that, with a limited series, three species might be indicated, as has in fact been done. These are as follows:

Var. *torquatus* Lec.—Head and thorax brassy, or slightly coppery or greenish, elytra dark olivaceous.

This form is widely distributed: Massachusetts, Michigan, Montana, Illinois, Kansas, Kentucky, Pennsylvania. There is often a great resemblance between some of the smaller females of this and

the larger females of *otiosus*, and at present I am unable to give any positive means of separating them, except the experience gained in handling large numbers of specimens.

Var. *fulgens* Lec.—A little more shining than normal.

Var. *coryli* Horn.—Color uniformly bright brassy.

This form occurs in Massachusetts, Illinois, Missouri, Florida.

Var. *obliquus* Lec.—Color uniformly coppery.

The type of this form, as remarked by Crotch, is founded on a large female; in fact, all the specimens I have seen are of that sex. These resemble some of the forms of *politus*, but the structure of the claws will separate them.

Habits.—The only information possessed of the habits of this species concerns the var. *coryli*, which lives on the Hazel (*Corylus*) according to Mr. Blanchard (Ent. Am. v, p. 32).

Hab.—Massachusetts to South Carolina, westward to Kansas and Montana.

A. cupricollis Gory.—Form of *ruficollis*; black, subopaque; head and thorax brassy or cupreous, as in *ruficollis*. Antennæ black, slightly bronzed, scarcely reaching the middle of the thorax, serrate from the fourth joint, joints 4-10 as wide as long; occiput very deeply impressed, front not impressed, surface coarsely punctate, sparsely on the front, more closely on the vertex. Thorax broader than long, not narrowed posteriorly, sides feebly arcuate, the marginal line strongly sinuous, hind angles with an obtuse elevation; disc convex, with a median, rather sharp impression posteriorly, broadly transversely impressed in front, at sides a deep oblique impression almost reaching the dorsum, surface coarsely transversely strigose, without punctures; scutellum transversely carinate; elytra very feebly sinuate behind the humeri and with a feeble posterior broadening, the abdomen concealed, apices separately rounded, serrulate, disc slightly flattened with very feeble trace of costa, the sutural edge slightly elevated behind the middle, basal depressions not deep; surface closely finely granulate; body beneath black, slightly violaceous; prosternal lobe broadly emarginate, intercoxal process gradually narrowed, acute at tip; propleuræ finely scabrous, opaque; metasternum at sides roughly scabrous, somewhat strigose. Abdomen transversely strigose with fine punctures along the edge of the strigæ, smoother along the middle and at apex than at the sides; pygidium coarsely punctate, not carinate; claws similar on all feet. Length .20 inch.; 5 mm.

Male.—Prosternum opaque, sparsely punctate, with short pubescence, ventral segments not impressed nor flattened. Metasternum longitudinally impresed. Anterior tibiæ with an extremely feeble incurved mucro at tip, middle and hind tibiæ simple.

Female.—Unknown.

So closely does this species resemble *ruficollis*, that at first glance it might readily be supposed to belong to that species. They are

easily separable by the fact that the former has a well marked projecting carina, while this has not. The occipital impression gives the appearance from above of a bilobed head, and the impression does not extend downward on the front, while in *ruficollis* the occiput is rather concave and the impression reaches the clypeus.

Occurs in Florida at St. Augustine.

A. angelicus n. sp.—Form rather robust, as in *muticus*; color brassy, moderately shining. Antennæ piceous, bronzed, not reaching the middle of the thorax, serrate from the fourth joint. Head slightly convex, a finely impressed line from the occiput to the clypeus, surface finely, not closely strigose, sparsely punctate, clypeus much broader at base than long at middle. Thorax broader long, base and apex equal, sides arcuate in front, sinuate behind the middle, hind angles rectangular with a short, acute, straight carina, disc convex, a vague median depression, another broad depression at the sides; surface transversely, not coarsely strigose with intermediate sparse punctures; scutellum not transversely carinate; elytra distinctly sinuate behind the humeri and broader behind the middle, the apices separately rounded and very feebly serrulate; disc convex, without trace of costæ, the basal depressions moderate, surface rather finely imbricately sculptured; body beneath more shining than above; prosternal lobe obtuse, broadly but feebly emarginate, the intercoxal process gradually narrowing, the apex acute, propleuræ with reticulate sculpture; metasternum coarsely punctate, reticulate. Abdomen finely punctate-strigose at middle, a little more coarsely at the sides, the first segment but little more rugose; pygidium coarsely punctate, feebly carinate; claws similar on all the feet. Length .25 inch.; 6.5 mm.

The only specimens seen are females, and show no secondary sexual characters. The lower appendage of the claws is less incurved than usual, reaching the form seen in *difficilis*. Should the form of claws induce one to place it elsewhere, it would be placed in the series near *muticus*, from any of which it will be known by the acute prosternum.

One specimen collected by Mr. D. W. Coquillett near Los Angeles; Sta. Cruz Mountains, Cal. (Nat. Mus.)

A. macer Lec.—Elongate, cupreo-æneous, feebly shining. Antennæ piceous, with brassy lustre, nearly reaching the middle of the thorax, serrate from the fourth joint; front flat, or slightly concave; occiput feebly impressed, the line extending to the middle of the front, surface rather uneven, densely coarsely punctate, slightly strigose on the occiput, a well marked transverse ridge at the base of the clypeus. Thorax nearly a third wider than long, very slightly narrowed at base, sides feebly arcuate, margin slightly sinuate, hind angles rectangular, the carina well marked and directed internally, disc convex, a vague median depression near the base, lateral depression broad, but not deep; surface not deeply transversely strigose, punctate between the striæ, near the sides and front angles more densely strigoso-punctate; elytra narrowed from the base with a very feeble post-median broadening, the apices rounded, rather strongly serrate, disc with a well marked costa extending from the humeri nearly to apex, the interval quite flat, the sutural border elevated slightly from apex, twice

thirds to base, basal depressions shallow, surface punctate-granulate, rather densely between the costæ, more sparsely at the sides; body beneath similar in color; prosternal lobe broadly emarginate, the intercoxal process broad with parallel sides, very abruptly narrowed at the apex, where it enters the metasternum; propleuræ closely punctate, finely fulvo-pubescent; metasternum at sides very densely punctured and subopaque, finely pubescent. Abdomen densely punctured at the sides, especially in front, rather sparsely along the median line; last segment very obtuse, subtruncate, the vertical portion of the segments rather densely fulvo-pubescent; pygidium carinate, the carina projecting and emarginate at tip; claws divaricate, broadly toothed at base. Length .35—.58 inch.; 9—15 mm.

Male.—Front slightly concave; scutellum scarcely visibly carinate. Prosternum densely punctate and slightly pubescent along the middle. Ventral segments simple; anterior tibiæ feebly mucronate.

Female.—Front flat, but irregular; scutellum distinctly carinate; prosternum not densely punctate nor hairy; tibiæ simple.

No variation worthy of note has been observed in this species.

In the original description the scutellum is said to be not carinate, but this proves in this instance to be merely a sexual peculiarity, as it is quite certain that Dr. LeConte had a male before him.

No difficulty need be experienced in recognizing this species, as it is one of but few having a well defined elytral costa, and for this reason, especially, seems rather out of place among our species.

Hab.—Texas, at Eagle Pass, and other localities in the southwestern portion of the State.

A. vittatocollis Rand.—Form generally resembling a large *ruficollis*; head and thorax coppery, subopaque, elytra black, opaque. Antennæ passing the middle of the thorax, serrate from the fourth joint, piceous, faintly bronzed; front slightly concave, the occiput more deeply impressed, the median impressed line extending to the base of the clypeus, surface rather closely strigose and punctate, clothed with golden-yellow pubescence, except near the upper half of the eye. Thorax fully one-third wider than long, sides rather strongly arcuate, the margin sinuate, disc convex, with a median shallow impression extending from base nearly to apex, lateral depressions vague, hind angles not carinate, surface closely strigose, the strigæ oblique in front, transverse near the base, a median band of golden pubescence extending from the basal to the apical margin, a broader band of similar pubescence adjacent to the lateral margin, the hind angle, however, not pubescent; scutellum transversely carinate; elytra distinctly sinuate behind the humeri, broadened behind the middle, nearly concealing the abdomen, apices rounded, serrulate; disc slightly flattened, without trace of costæ; the sutural edge slightly elevated at apical third, basal foveæ moderate; surface densely granulate and opaque; body beneath black, slightly æneous, with very sparse, fine golden pubescence; prosternal lobe obtusely truncate, the intercoxal process broad, very little narrowed, except at apex, where the narrowing is abrupt, at which point the sides are slightly bent downward forming a tooth; the surface, with the propleuræ, closely punctate; metasternum at sides densely

punctate and strigose. Abdomen finely punctate, sparsely along the median line, more densely at the sides, especially on the first two segments, which are also slightly strigose, the vertical portion of the segments densely clothed with golden pubescence; last segment obtuse at tip; pygidium coarsely punctate, rather strongly carinate, the carina projecting and truncate at tip; claws dissimilar in the sexes. Length .31—.37 inch.; 8—9.5 mm.

Male.—Prosternum densely punctured and opaque, not pubescent. First ventral segment slightly flattened at middle and rugulose, the second with a very feeble longitudinal depression; tibiæ of all three pairs distinctly mucronate at the inner apical angle; claws of front feet almost truly bifid, middle feet less so, posterior feet nearly toothed.

Female.—Prosternum less densely punctate and more shining. Ventral segments not impressed; tibiæ not mucronate at tip; claws rather broadly toothed on all three pairs of tarsi.

Among the numerous specimens examined no variation worthy of mention has been observed. Resembles *fuscipennis*, but the color of the thorax of that species is due to varying color of the surface, and not to the presence of pubescence, as in the present species.

Hab.—Massachusetts, westward to Illinois. A specimen (♀) in my cabinet from Nevada is at present not separable, but the male may show it to be distinct when discovered.

A. audax n. sp.

The species for which this name is proposed so closely resembles *vittatocollis*, that it seems unnecessary to repeat the description, only the points of difference will be given.

Thorax similar in color, but rather more evidently transversely strigose, the median line of golden pubescence does not reach the apical margin, the lateral pubescent area is separated from the margin by a naked edge, but the pubescence extends to the hind angles; body beneath more brassy, the propleuræ, mesopleuræ, metapleuræ and outer half of coxal plate with golden pubescence. Length .35—.40 inch.; 9—10 mm.

Male.—Prosternum closely punctate, not pubescent, the intercoxal process gradually narrowed without dentiform reflexion of the edge. First ventral segment slightly flattened at middle, the second with a rather deep smooth groove, which is wider in front, extending three-fourths to the posterior edge of the segment; anterior and middle tibiæ feebly mucronate, the posterior simple; claws nearly as in *vittatocollis*.

Female.—Prosternum less closely and deeply punctate. Ventral segments simple; tibiæ not mucronate; claws as in *vittatocollis*.

This species presents the closest resemblance that it seems possible

for one species to have to another. The males are abundantly distinct by the ventral characters, but both sexes can be separated from *vittatocollis* by the hairy pleuræ and coxal plates.

Hab.—Texas.

A. bilineatus Weber.—Black, with sometimes a slightly greenish tinge, opaque; sides of thorax clothed with yellow pubescence, and a vitta of same from the humeri three-fourths to the tip of the elytra. Antennæ slightly æneous, extending beyond the middle of the thorax, serrate from the fourth joint; front slightly convex, densely coarsely punctured, occiput impressed, the line extending to the middle of the front. Thorax one-third wider than long, distinctly narrower at base, sides nearly straight anteriorly, sinuate near the hind angles, which are sharply rectangular and not carinate, margin sinuous; disc convex, a very vague median depression, the lateral oblique impression short; surface rather finely transversely strigoso-punctate, the sides broadly clothed with golden, rarely whitish pubescence; scutellum transversely carinate; elytra sinuate behind the humeri, broadened behind the middle, apices rounded, serrulate; disc flattened, the basal depressions moderate, sutural edge slightly elevated at apical third, surface densely granulate and subopaque, with a vitta of yellow or whitish hairs extending from the basal depression three-fourths to apex; body beneath more shining than above and more greenish; prosternal lobe truncate, intercoxal process rather broad, gradually narrowed to apex, propleuræ granulate, sparsely pubescent; meso- and metapleuræ and outerside of coxal plates rather densely pubescent. Abdomen finely and sparsely punctate along the middle and more densely and coarsely at the sides, the first segment rougher and strigose, the vertical portions of the segments densely pubescent; pygidium coarsely punctate, with a strong median carina, which projects at apex; claws dissimilar in the sexes. Length .22—.37 inch.; 5.5—9.5 mm.

Male.—Head more or less green, more densely punctate and opaque. Prosternum densely punctate and subopaque, especially between the coxæ, not pubescent. First ventral segment slightly flattened at middle, the second with a deep smooth groove; anterior tibiæ slightly mucronate at apex, the others simple; anterior and middle claws almost truly bifid, the posterior claws with a slender, acute tooth.

Female.—Head more convex, less densely punctured, more shining, with brassy or cupreous lustre. Prosternum more shining, less densely punctured. Ventral segments simple; tibiæ not mucronate; claws with a slender acute tooth on all the feet.

Variations.—The hair forming the lateral space of the thorax and the vittæ on the elytra is usually golden-yellow in color, but specimens often occur with hair quite white with intermediate shades. More rarely specimens occur without any pubescent markings above, the absence of hair not being due to abrasion, as might be suspected, but seems to be the result of starved development, as all the specimens seen are of the smallest size.

Habits.—Not rare on Oak foliage, logs, stumps, etc., July; Massachusetts (Blanchard, "Ent. Am." v, p. 32). Taken on White Oak, June (Tolman, "Insect Life," i, p. 343).

Hab.—Occurs from Maine westward to the Rocky Mountains, and south to Texas.

A. granulatus Say.—Form rather slender, color brassy bronze, each elytron with three indistinct pubescent spots—basal, median and ante-apical, the first often wanting. Antennæ slender, nearly reaching the hind angles of the thorax, serrate from the fourth joint, slightly greenish; front rather flat, occiput with a linear impression extending to the middle of the front; surface coarsely closely punctate, occiput slightly strigose. Thorax wider than long, scarcely narrowed at base, sides regularly arcuate, lateral margin faintly sinuous, disc convex with three depressions, the one larger in front of scutellum, the two others in front on each side of middle less distinct, or even absent, the lateral oblique impression well marked, hind angles with a well defined, arcuate carina; surface transversely strigose, punctate in front; scutellum transversely carinate; elytra feebly sinuate behind the humeri, slightly broadened behind the middle, apices acute, serrulate; disc slightly flattened at middle, the sutural margin elevated behind the middle, basal foveæ moderate, surface rather coarsely imbricate; body beneath darker than above; prosternal lobe emarginate, the intercoxal process rather broad, parallel, acute at tip, the propleuræ with the entire side of body densely clothed with yellowish pubescence. Abdomen not very closely punctate, the sides of each segment with a more densely punctured spot clothed with pubescence, the vertical portion of the segments, except the second, densely pubescent; pygidium coarsely punctate, with a strong median carina, which projects at tip; claws dissimilar in the sexes. **Length .30—.35 inch.: 7.5—9 mm.**

Male.—Front somewhat greenish. Prosternum quite densely punctured between the coxæ, more sparsely in front; first ventral segment longitudinally impressed with a smooth median line, second segment more deeply impressed, the impression smooth and extending nearly to the suture; anterior and middle tibiæ feebly mucronate, the posterior simple; anterior and middle claws almost bifid, being cleft at the tip, posterior claws broadly toothed.

Female.—Front cupreous. Prosternum coarsely punctured between the coxæ, much smoother in front. Ventral segments simple; tibiæ simple; claws broadly, but acutely toothed on all the feet.

Variations.—In all well preserved specimens there will be observed a line of pubescence extending from the front angles of the thorax to the base, passing inside of the carina. The pubescent spots of the elytra are at most faint, and are easily removed by abrasion, but their position is always indicated by a small and more densely punctured area. The three discal impressions of the thorax are variable. The

position is always distinct, but the two in front may escape observation.

Of the habits of this insect nothing is certainly known. Care must be taken not to confound small specimens of this with *oblongoguttatus* (*interruptus*) or *fallax*, but neither of these has the pygidial spine.

It is quite clear that this is the species Say had before him from his remarks in the original description, and a subsequent note (vide edit. Lec. ii, pp. 104 and 596). LeConte, in his "Revision," p. 245, admits both *granulatus* and *quadriguttatus*, but it is very clear that he has used the female as his type of the former and a male for the latter.

Hab.—New England States westward to Missouri.

A. nevadensis n. sp.—Form elongate, elytra very acute at apex, piceous, subopaque, with feeble violaceous lustre beneath. Antennæ nearly attaining the hind angles of the thorax, with bronze lustre, serrate from the fourth joint; front feebly convex, a moderately impressed line extending from the occiput to middle of front, surface closely punctate, a vague fovea each side of middle. Thorax nearly a half wider than long, sides arcuate with a slight sinuation near the hind angles, these with a strong arcuate carina, disc convex, with a broad, but vague median impression consisting of an anterior and posterior division, lateral depression shallow, surface comparatively smooth each side of middle, some vague strigæ posteriorly and punctate near apex, at sides densely punctate; scutellum not transversely carinate; elytra scarcely sinuate behind the humeri, without post-median dilatation, the sides of the abdomen exposed, apices separately acute and somewhat prolonged, serrulate, disc slightly flattened at middle, a vague costa on each side and three depressions, which are slightly pubescent; basal, median and one-third from apex, surface vaguely not closely imbricate, less closely than in *cavatus*; prosternum closely punctate, the lobe distinctly emarginate, intercoxal process gradually narrowed, acute at tip, propleuræ closely punctate, scabrous, sparsely pubescent; metasternum at middle comparatively smooth, at sides closely punctate and slightly strigose. Abdomen nearly smooth at middle, very sparsely punctate at sides, even on the first two segments, very sparsely pubescent, the vertical portion of segments sparsely pubescent; pygidium coarsely punctate, with a median carina, which projects rather strongly at apex. Length .40 inch.; 10 mm.

Male.—Unknown.

Female.—Tibiæ not mucronate, claws similar on all the feet, cleft posteriorly to the tip, the lower portion forming an acute tooth.

This species is totally unlike any other in our fauna from the acute and somewhat prolonged elytra. Its general form is not very unlike *macer*. It will be known, however, among the species with projecting carina by its feeble sculpture, the presence of the three pubescent

spots (although these are not very distinct) and the comparatively smooth abdomen without conspicuous pubescence.

Hab.—Western Nevada (Morrison).

A. niveiventris n. sp.—Form rather more slender than *politus*; color bright coppery, with the thorax slightly brassy, varying to olivaceo cupreous. Antennæ æneous, attaining the middle of the thorax, serrate from the fourth joint. Head feebly convex, a slight median impressed line from the occiput to the middle of the front, the latter densely punctate, occiput slightly strigose. Thorax one-third wider than long, sides regularly arcuate, lateral margin slightly sinuate, hind angles with a strong, arcuate carina, disc convex, with a vague median depression composed of an anterior and a posterior depression, lateral depression feeble; surface transversely strigose, with punctures between the strigæ; in some specimens the strigæ are very feeble; scutellum transversely carinate; elytra sinuate behind the humeri, slightly broadened behind the middle, apices separately rounded, finely serrulate, disc slightly flattened at middle with an extremely vague costa; surface with imbricate sculpture, less close and more shining than in *politus*, with three indistinct pubescent spots, often merely indicated by a slightly denser punctuation, these spots placed as in *nevadensis*; prosternum densely punctured, the lobe acutely emarginate at middle, the intercoxal process parallel, acute at tip, propleuræ densely punctured with conspicuous whitish pubescence; metasternum at sides densely punctate and transversely strigose, pubescent as in the propleuræ. Abdomen sparsely punctate at middle, more densely at the sides and finely strigose, especially on the first two segments, vertical portions of the segments densely white pubescent; pygidium coarsely punctured with a strong median carina, projecting at apex. Length .25—.37 inch.; 6.5—9.5 mm.

Male.—Front slightly flatter; tibiæ not distinctly mucronate: claws cleft one-third from apex, forming an acute tooth; first ventral segment flattened at middle, the second with a slightly depressed, smooth space at anterior half of middle.

Female.—Front slightly convex; tibiæ not mucronate; claws cleft at middle, forming an acute tooth. Ventral segments convex at middle, the first much smoother than on the male.

Variations.—The color variation has been referred to. In many specimens there is on each side of the median line, nearer the front, a fovea which is as often absent. In very carefully collected specimens the sides of the thorax above have a white efflorescence, and the body beneath, at sides, seems very densely pubescent, owing to the efflorescence between the hairs. This is, however, so easily lost, one might readily suppose two specimens to be distinct species which had been unequally handled in collecting.

The three pubescent spots on the elytra are, at best, very feeble, and some care must be used in their observation.

Habits.—Nothing is known to me.

Hab.—Western Nevada; Los Angeles, Cal., and Arizona, near Yuma.

A. pensus n. sp.—Form of *arcuatus*; color slightly cupreous, feebly shining. Antennæ rather slender, passing the middle of the thorax, slightly greenish, serrate from the fourth joint. Head feebly convex, occiput slightly impressed, the line extending to the middle of the front, the front coarsely and closely punctate, occiput less closely. Thorax broader than long, not narrower at base, sides regularly arcuate, lateral margin sinuate, hind angles with a fine, short carina; disc convex, but irregular, a vague depression in the front and base of the median line, sometimes a fovea on each side; lateral oblique impressions distinct, but short; surface vaguely transversely strigose and punctate; elytra slightly sinuate behind the humeri, and a little broadened behind the middle apices subacute and serrulate, disc slightly flattened, the sutural edge elevated from the middle to the apex; surface imbricate, more closely at apical third and in the basal foveæ, which are moderately deep; body beneath similar in color to the upper surface, but more shining; prosternal lobe feebly emarginate at middle, the intercoxal process moderately broad, acute behind the coxæ, the propleuræ granulate-imbricate, sparsely pubescent; metasternum at sides roughly imbricate. Abdomen finely punctate, very sparsely at middle, more closely at the sides, the first segment finely strigose, the outer surface including the vertical portion of the segments finely and sparsely pubescent; last ventral segment very obtuse or truncate; pygidium coarsely punctate, with a strong carina, which projects at tip; claws dissimilar. Length .30—.32 inch.; 7.5—8 mm.

Male.—Front more or less greenish. Prosternum roughly punctured, more sparsely in front, not pubescent; first ventral segment flattened at middle, the second with a smooth but not deep groove extending two-thirds the length of the segment; anterior tibiæ feebly mucronate, middle and posterior tibiæ simple; claws of front tarsi cleft close to apex, almost bifid, middle or hind claws broadly toothed.

Female.—Front cupreous, and somewhat more convex. Prosternum but little smoother than the male. Ventral segments simple; tibiæ not mucronate; claws broadly toothed on all the feet.

The six specimens before me show no variation. In its general appearance the species greatly resembles some of the forms of *politus*.

From the species which seem most closely related to this (*anxius* and *Blanchardi*) the present differs primarily in color, this being cupreous, they olivaceous. Color characters are, however, not greatly to be regarded, as great variations do occur. On the male sexual characters it is better to place more reliance, as these are far more constant.

Hab.—Massachusetts (Blanchard).

A. Blanchardi n. sp.—Form moderately robust, olivaceous bronze, subopaque. Antennæ scarcely passing the middle of the thorax, serrate from the fourth joint, surface bronzed. Head rather flat, occiput highly impressed, the

line extending to the middle of front; surface closely punctate, more densely in male. Thorax one-third wider than long, not narrowed at base, sides regularly arcuate, margin sinuous, hind angles with a strong arcuate carina in both sexes, disc convex, with a median shallow depression formed by two foveæ, on each side of middle usually a smaller fovea, lateral depression moderately deep, but short; surface finely transversely strigose with fine punctures between; scutellum transversely carinate; elytra slightly sinuate behind the humeri, slightly broadened behind the middle, apices subacutely rounded, serrulate, disc somewhat flattened with a vague costa, the sutural margin elevated behind the middle, basal depressions moderately deep; surface rather densely imbricate-granulate; body beneath more shining than above; prosternal lobe subtruncate, intercoxal process moderately broad, acute at tip, propleuræ granulate, finely pubescent; metasternum at sides roughly transversely strigose. Abdomen finely punctate, sparse along the middle, closer along the sides and dense at the side of the first segment; vertical portions of the segments finely pubescent, apical segment truncate; pygidium coarsely punctured and with a median carina projecting strongly at apex; claws dissimilar on the feet. Length .35 inch.; 9 mm.

Male.—Prosternum densely punctured between the coxæ, more coarsely in front; surface not pubescent; first and second ventral segments each with a deep, smooth median groove, that on the second segment extending nearly to the suture posteriorly; anterior tibiæ very distinctly mucronate, middle less distinctly, posterior tibiæ simple; claws of middle and anterior tarsi cleft so close to the tip as to seem bifid, posterior claws broadly toothed at base.

Female.—This sex has not, with certainty, been found among my specimens. It probably differs from the male in the manner usual in the group.

In well preserved specimens of this species the underside of the body is more or less clothed along the side with a whitish efflorescence, whereby the pubescence is made more evident, and apparently more dense.

This species closely resembles *pensus* and *anxius*, so that it will be difficult to separate the females, especially from the latter, but the ventral characters of the male will enable it to be at once recognized.

Hab.—Lake Superior region, New York, Massachusetts.

A. anxius Gory.—Form moderately robust, olivaceous bronze, subopaque. Antennæ attaining the middle of the thorax, serrate from the fourth joint, slightly bronzed; front rather flat, occiput slightly impressed, the line scarcely reaching the middle of the front; surface roughly punctured, somewhat strigose. Thorax wider than long, not narrowed at base, sides regularly arcuate, margin sinuous, hind angles with a strong arcuate carina in both sexes, disc convex, a vague median depression composed of two parts, on each side often a small fovea, lateral depression moderate, surface indistinctly transversely strigoso-punctate; scutellum transversely carinate; elytra slightly sinuate behind the humeri, a little broader behind the middle, apices subacute, serrulate; disc

slightly flattened with a vague costa, sutural edge elevated behind the middle, basal depressions moderate, surface closely imbricate-granulate; body beneath more shining than above and more greenish; prosternal lobe distinctly emarginate at middle, the intercoxal process moderately broad, acute at tip, propleuræ not closely punctate, very little pubescent, sides of metasternum densely, not coarsely, asperate. Abdomen moderately closely punctate, less so at middle, dense at sides of first segment: last segment truncate, vertical portion of ventral segments sparsely pubescent; pygidium coarsely punctate, the median carina produced at apex; claws dissimilar on the feet. Length .30—.45 inch.; 7.5—11.5 mm.

Male.—Front more densely punctured, usually greenish. Prosternum densely punctured between the coxæ, more sparsely in front, not hairy; first ventral segment vaguely depressed along its middle, but not smooth, the second with a smooth, deep impression extending two-thirds to the suture; anterior tibiæ feebly mucronate, middle and posterior tibiæ simple; claws of anterior and middle feet cleft at apex, apparently bifid, posterior claws cleft near base, forming a short, acute tooth.

Female.—Head somewhat cupreous, less densely punctate. Ventral segments simple; tibiæ not mucronate; claws broadly toothed at basal half.

The color of this species is remarkably constant, varying but little from olivaceous, becoming but slightly green or plumbeous, resembling closely both *pensus* and *Blanchardi*, from either of which reference must be had to the male characters for separation, although the carina of the hind angles of the thorax is, in both sexes, stronger and more arcuate than in any species related here. In my cabinet a male specimen from an unknown locality agrees in all particulars, except that the hind claws have the same form as on the middle and front feet, and the angular carina is much less distinct. While it may represent a different species, it seems preferable to allow it to pass with mere mention.

A careful examination of the types of *torpidus* and *gravis* prove them identical with the present species. Both were founded on female specimens.

Hab.—Massachusetts and New Hampshire; westward to Colorado.

A. acutipennis Mann.—Form moderately robust, color variable from blue, or blue-black to olivaceous; surface feebly shining. Antennæ slightly passing the middle of the thorax, bluish or greenish, serrate from the fourth joint. Head densely coarsely punctured, front rather flat, with a vague crescentic depression, occiput rather concave, the median impressed line extending to the middle of the front. Thorax one-fourth wider than long, not narrowed at base,

sides arcuate, lateral margin sinuate, hind angles not at all, or only very obtusely carinate; disc convex, with a vague median depression divided at middle, usually on each side a fovea, lateral depression well marked; surface transversely strigose, but not coarsely, with finer punctures in the intervals; scutellum transversely carinate; elytra sinuate behind the humeri, slightly broadened behind the middle, apices subacutely rounded, serrulate, disc flattened at middle, sometimes with a vague costa, basal fovea moderate, suture elevated behind the middle, surface densely imbricate-granulate; body beneath more shining than above; prosternal lobe subtruncate, vaguely emarginate, intercoxal process broad, nearly parallel, acute at tip, vaguely impressed longitudinally, propleuræ densely punctate and rather densely clothed with whitish pubescence, sides of metasternum, metapleuræ and outer side of coxal plates densely punctate and with whitish pubescence. Abdomen moderately closely punctate, at sides of first ventral strigose, last segment oval at tip, vertical portion of the ventral segments densely clothed with whitish pubescence, except sometimes on the second segment; pygidium coarsely punctate, the median carina prolonged at apex; claws variable on the feet. Length .32—.40 inch.; 8—10 mm.

Male.—Front less irregular, the median impression well defined, but with feeble traces of oblique depressions; anterior and middle tibiæ feebly mucronate, posterior tibiæ simple; claws of anterior and middle tarsi cleft very near the apex, nearly bifid, posterior claws acutely cleft, but less close to apex; first ventral segment convex at middle, the second with a deep, smooth, abruptly formed groove extending from the first suture more than half to the second.

Female.—Front more irregular, the median groove less sharply defined, the oblique depressions more evident; tibiæ not mucronate; claws similar on all the feet, cleft behind the apex, forming an acute tooth. Ventral segments convex at middle, not grooved.

Variations.—Two well marked varieties may be indicated based on color, between which there are, however, distinct intermediates.

Var. *acutipennis* Mann.—Color deep blue, becoming blue-black in one direction, or slightly olivaceous in the other.

This form is usual in the more southern regions, although my darkest specimen is from Massachusetts, as well as that intermediate between the blue form and the next variety.

Var. ————.—Color olivaceous, the thorax somewhat brassy.

This variety seems confined to the more northern regions of the country; in fact, all I have seen are from Massachusetts.

Habits.—Mr. Blanchard states that he has taken the *acutipennis* form on the foliage of Oak shrubs, the other on foliage of Poplar sprouts. These observations do not give any positive indication of the wood into which they bore.

While I have united the two forms with some reluctance I will admit that I have been unable to find any structural character separating them. The extremes are quite distinct in color, but the intermediates form a complete union.

Hab.—Massachusetts to Kansas, Florida and Texas.

A. Conesii Lec.—Elongate, somewhat depressed, slightly concave on the dorsal line when viewed laterally, color golden-green, moderately shining, sides of thorax and elytral vitta pubescent. Antennæ rather short, not attaining the middle of the thorax, æneous, serrate from the fourth joint. Head broadly concave, more deeply impressed along the middle, a tubercle each side of middle of front, a rather deep transverse groove above the base of clypeus, between the antennal fovea, surface very coarsely punctate, occiput slightly strigose. Thorax one-third wider than long, slightly narrowed at base, sides feebly arcuate, margin sinuous, hind angles rectangular, with a slight obtuse elevation in the male and a feeble carina in the female; disc moderately convex, with a broad and rather deep groove extending from base to apex, sides obliquely depressed, surface punctate and rather coarsely strigose, except on a space each side of median groove, broadly clothed with yellowish white pubescence at sides; scutellum not transversely carinate; elytra slightly sinuate behind the humeri, feebly broadened behind the middle, apices obtusely rounded, serrulate, disc somewhat flattened, with a very well defined costa extending from the humeri very nearly to apex, in latter region slightly sinuous; surface pubescent, but forming a distinct vitta within each costa, extending from the feeble basal depression to apex and near the latter region twice interrupted, punctuation dense and fine between the costæ, coarser exterior to them; body beneath more shining than above; prosternum sparsely punctate in both sexes, the lobe emarginate, intercoxal process broad, obtusely pointed at apex, propleuræ densely punctate, somewhat strigose, distinctly pubescent; metasternum at middle sparsely punctate, at sides more densely and finely and with the episterna and outer half of coxal plate pubescent. Abdomen very sparsely punctate at middle, first and second segments with a densely punctured and pubescent stripe at a distance from the lateral margin, the next three segments with a pubescent triangular spot at sides, the lateral marginal line on the first two segments indistinct and sinuous, the vertical portions of the segments densely pubescent; pygidium with a feeble carina, which does not project; claws cleft, forming a broad tooth in both sexes. Length .38—.44 inch.; 10–11 mm.

Sexual characters.—The sexes are differentiated with some difficulty. I observe that the male has the dorsum less depressed and the carina of the hind angles merely a feeble elevation.

Very few specimens have been seen, and no variations observed.

This species and *cavatus* are of an entirely different facies from the remainder of our species, being of the type more commonly observed in Mexico. It has been supposed to be identical with *perlucidus* Gory, an opinion which Crotch thought not well founded.

Occurs in Arizona and southern New Mexico (Snow).

A. cavatus Chev.—Elongate, much narrowed posteriorly, cupreous or cupreous, shining; elytra with pubescent spaces. Antennæ æneous, attaining the middle of the thorax, serrate from the fourth joint. Head deeply excavated, bearing two tubercular elevations at lower inner border of eye, a deep transverse depression above the base of clypeus, surface coarsely not closely punctate. Thorax nearly a half wider than long, slightly wider at base than apex, sides feebly arcuate, margin sinuate, hind angles rectangular, with a slight tuberosity replacing the carina, disc convex, with a deep oval depression widest posteriorly, lateral depressions moderately deep, surface punctate and transversely strigose; scutellum transversely carinate; elytra parallel for a short distance behind the humeri, then slightly sinuate and gradually narrowed to apex, apices rounded and serrate, disc slightly depressed with a vague costa extending from the humerus two thirds to apex, less distinct in the female, basal depression moderate, surface not closely punctate, somewhat imbricate at the sides, a sparsely pubescent vitta from the humeral depression two-thirds to apex, a small spot posteriorly; body beneath more brassy than above; prosternum sparsely punctate, the lobe rounded, intercoxal process rather broad, obtusely pointed at apex, propleuræ more closely punctate, strigose and sparsely pubescent; metasternum sparsely punctate, the disternum and outer half of coxal plate densely pubescent. Abdomen sparsely punctate, somewhat strigose on the sides of the first two segments, third segment with a densely pubescent spot at side; vertical portion of the segments densely pubescent, except the second; pygidium coarsely punctate, the carina not projecting. Length .36—.56 inch.; 9—14.5 mm.

Sexual characters.—The males may be known by their smaller size, more slender form, the abdomen less dilated beyond the sides of the elytra, the elytral costa better defined, and the tuberosity in the hind angles of the thorax less so. There are no ventral characters. The claws are cleft quite near the tip, forming an acute tooth in the front and middle claws, more broadly toothed on the posterior. The tibiæ are not mucronate. The female claws do not differ.

Variations.—When carefully collected specimens are at hand the elytral vitta extends from the humerus two-thirds to apex, forming at its end a denser spot, on each side there is a short pubescent vitta opposite the end of the former and a short distance in the front of the apex a small pubescent spot. By abrasion the greater part of the vitta is often lost, and there then remains a basal spot, the denser end of the vitta and the ante-apical spot.

Hab.—Southwestern Texas, extending well into Mexico.

A. concinnus n. sp.—Form somewhat resembling *macer*, but more obtuse posteriorly, thorax more or less cupreous, elytra bicolored, the outer side brassy green, the middle on each side of suture dull olive-bronze, almost black. Antennæ attaining the middle of the thorax, piceous, slightly bronzed, serrate from the fourth joint, the serrate joints wider than long. Head not deeply concave, a vague median depression and a feeble transverse depression slightly above the middle of the front, surface not closely punctate, vaguely strigose, more evi-

dently strigose on the vertex. Thorax one-third wider than long, slightly narrowed at base, sides in front very feebly arcuate, thence nearly straight to hind angles, which are rectangular and without trace of carina, lateral margin slightly sinuous, disc feebly convex, a rather deep elongate oval median depression, widest near base, lateral oblique depressions moderate, color cupreous, the sides æneous, surface closely punctate, scarcely at all strigose, the sides with a broad band of yellowish pubescence covering the brassy margin; scutellum not carinate; elytra feebly sinuate at the sides, very slightly broadened behind the middle, apices rounded and minutely serrulate, disc depressed, vaguely channeled each side of suture, color dark olive-bronze or nearly black in the channel, brassy at the sides, surface punctate and feebly imbricate; body beneath piceous, slightly æneous, metasternum slightly cupreous; prosternal lobe deeply emarginate, with a deep transverse depression, intercoxal process broad, acutely oval at tip, propleuræ roughly strigose; metasternum at sides transversely strigose. Abdomen sparsely finely punctate, somewhat strigose at the sides of the first segment, vertical portions of the segments densely pubescent; last ventral segment truncate and feebly emarginate; pygidium sparsely punctate, not carinate; claws broadly toothed. Length .50 inch.; 12.5 mm.

In the five specimens examined no sexual differences have been observed.

The posterior tibiæ have a form which has not been observed in any other of our species. Near the apex the tibia is rather abruptly narrowed. The fringe of short bristly hairs which is observed along the posterior edge of the tibiæ in all the species in a varying degree is here present, but ends abruptly at the point at which the tibia is narrowed.

The facies of this species is so unlike the style of those of our fauna, that I remained for some time in doubt as to the correctness of the locality. Recently, however, a specimen has been sent me from the National Museum removing all doubts.

Hab.—Georgia, Florida (Nat. Mus.).

A. Walsinghami Crotch.—Moderately elongate, of rather robust facies, but little narrowed posteriorly, color variable from bluish to cupreous and brassy. Antennæ short, joints longer than wide, color variable, serrate from the fourth joint. Head convex, with a median depression from the occiput, which becomes broader on the front, a deep transverse depression at base of clypeus, surface coarsely and closely punctate. Thorax one-third wider than long, sides feebly arcuate, lateral margin nearly straight, hind angles rectangular, without trace of carina; disc convex, with a median depression extending from base to apex, lateral depressions feeble, surface coarsely moderately closely punctate, without trace of strigosity; scutellum very indistinctly carinate; elytra feebly sinuate behind the humeri then nearly parallel, narrowed at apical third, apices rounded, feebly serrate, disc rather convex, basal depressions feeble, on each side two fine vague costæ extending two-thirds to apex, surface closely imbricately sculptured and with small white pubescent spots arranged as follows: in the basal depression, one in front of middle inside of the costæ, at middle exterior to the costa,

one-fourth from apex within the costa; body beneath more shining than above, prosternum sparsely punctate, lobe deeply emarginate, intercoxal process broad, very obtuse at tip, propleurae densely punctate and clothed with white pubescence; metasternum densely punctate at the sides and with the episternum and coxal plate clothed with white pubescence. Abdomen not closely punctate, except at the sides of the first segment, the suture between it and the second well marked at the sides, segments two to five with a pubescent space at sides placed transversely, vertical portion of the segments with white pubescence; last segment serrate at sides near apex; pygidium coarsely punctate, the carina not projecting; claws cleft behind the apex, forming an acute tooth. Length .40—.50 inch.; 10—13 mm.

Sexual characters.—Although both sexes are before me, there seem to be no external characters by means of which they can be separated, excepting that all the tibiæ of the male have a short mucro at tip on the inner apical side, while in the female they are simple.

Variations.—Beyond the color nothing has been observed. The pubescent spots may be abraded, although they seem unusually persistent. The smaller spots, posterior to the base, form on the elytra an elongate hexagon.

Hab.—Oregon and northern California; Boise City, Idaho; Luna, N. Mex.; following the distribution of *Melanophila miranda*.

A. pulchellus Bland.—Subcylindrical, moderately robust, dorsum slightly depressed, head brassy, thorax green, elytra bicolored, the sides cupreo-æneous, a broad common stripe green or purple. Antennæ rather robust, scarcely attaining the middle of the thorax, usually cupreous, serrate from the fourth joint, the serrate joints wider than long. Head deeply impressed along the median line, almost bilobed, surface coarsely punctured and somewhat strigose, clypeus very narrow between the antennæ, mouth inferior. Thorax quadrate, nearly as long as wide, sides scarcely at all arcuate, margin straight, hind angles rectangular, with a slight elevation, but not truly carinate; disc convex, with a median depression variable in form, lateral oblique depression not deep, surface coarsely strigose, obliquely at the middle of base, transverse in front and at sides; scutellum not carinate; elytra scarcely sinuate at sides, and but feebly broadened behind the middle, the abdomen distinctly exposed at sides in the female, apices rounded, feebly serrulate; disc slightly flattened, not sulcate, basal depressions feeble, surface relatively coarsely and closely granulate-muricate, slightly strigose at the sides; body beneath æneous or cupreous, the entire side broadly clothed with silvery-white, scale-like hairs, with intermixed efflorescence, except the met-episternum and the posterior angles of the first four ventral segments; prosternal lobe emarginate, intercoxal process parallel, obtuse at apex; met-episternum and hind angles of first four ventral segments roughly granulate-strigose. Abdomen submuricately punctate, not closely, last segment serrulate at sides; pygidium subacute at apex, the carina well marked, but not projecting; claws dissimilar in the sexes. Length .25—.36 inch.; 6.5—9 mm.

Male.—Head brightly æneous or cupreous; prosternum closely punctate and slightly hairy. Ventral segments not impressed; claws

f anterior and middle feet cleft close to apex almost bifid, those of he posterior feet cleft more nearly the middle.

Female.—Head dull cupreous or purplish; prosternum sparsely ıdistinctly punctate, scarcely pubescent; claws acutely toothed a ttle in front of middle.

In the two females before me the underside is purplish black, in-luding the legs, while all the males are brassy.

Variations.—In the males the thorax is green, inclining somewhat › purplish occasionally, while the two females are deep purple. The ides of the elytra in both sexes are cupreous, sometimes æneous in he males, the intermediate space green, varying to purple in the ıale, and purple in the female.

For this species and one closely allied from Mexico, Mr. Water-ouse (Biol. Cent. Am. vol. iii, pt. 1, p. 50) has suggested the generic ame *Engyaulus*, which he separates from *Agrilus* by the convex ront, and the mouth consequently more inferior, and the short first oint of the posterior tarsi. In a study of our species these charac-ers are shown to have no value, as will be seen by an examination f the form of the head in the species near which *pulchellus* is placed —*Walsinghami*, *obolinus* and *muticus*. While the first joint of the ind tarsus is short, it is still equal in length to the next two, so that hen compared with these or with the tibia the length is scarcely ess than in very many species before me. From the fact that there re no valid characters for retaining *Engyaulus* apart from *Agrilus* ur species is returned to the latter genus.

Hab.—Arizona and Colorado.

A. obolinus Lec.—Facies rather robust, color from æneo-cupreous to plum-eous, feebly shining, sparsely finely pubescent. Antennæ short, scarcely attain-ıg the middle of thorax, æneous, serrate from the fourth joint; front concave, arsely closely punctured. Thorax very little wider than long, sides feebly rcuate, margin sinuate, hind angles rectangular without trace of carina, disc onvex, with a median impression extending from base to apex, widest poste-iorly, lateral oblique depression moderate, surface punctate, rather coarsely not losely, without strigosity; scutellum without trace of transverse carina; elytra ebly sinuate behind the humeri, slightly broadened behind the middle, apices btuse without serrulation, disc moderately convex, with feeble basal depressions nd two very vague costæ on each side, surface moderately closely imbricately unctate; body beneath scarcely more shining than above; prosternal lobe roadly emarginate, the intercoxal process broad and very obtuse at tip; pro-leuræ coarsely punctate and slightly strigose; metasternum densely and more nely punctate, slightly strigose. Abdomen finely punctate, sparsely at middle, ıore densely at the sides, especially on the first two segments; last ventral seg-

m rrate at sides near apex, vertical portion of segments sparsely pubescent; py m coarsely punctate, the carina not projecting; claws cleft near the tip, forming a broad tooth. Length .32—.36 inch.; 8—9 mm.

Male.—Prosternum rather flat, densely punctate, finely pubescent.

Female.—Prosternum more convex, more sparsely punctate and shining, not pubescent.

Variations.—Nothing has been observed, except in the color.

The elytra have been described as serrulate, but this is an error of observation, from the fact that the sides of the last ventral are rather strongly serrate, a rather unusual character not heretofore recorded in o pecies.

Hab.—K nsas, Texas, A d southern California (Ulke).

A. muticus Lec.—Form rather ust, color plumbeous, or with slight bluish lustre. Antennæ scarcely att g the middle of the thorax, piceous, serrate from the fourth joint; head ex, front alone impressed along the middle, the surface densely punctate, orax nearly square, sides slightly sinuous, margin sinuate, hind angles slightly everted and with a feeble straight carina, disc convex, a vague median depression near the base, lateral depression le, surface densely punctate with ely strigose arrangement; elytra sinu- behind the humeri, very feebly ed behind the middle, apices slightly sinuate, not serrulate, disc slightly fl ned, basal depressions feeble, surface densely, finely, imbricately granulate; scutellum not transversely carinate; body beneath more shining than above; prosternal lobe truncate, or slightly emarginate, intercoxal process broad, slightly broader at apex and emarginate; propleuræ and sides of metasternum densely punctate, the latter slightly strigose. Abdomen finely not closely punctate, more closely at the sides and on the first segment, vertical portion of segments pubescent, but not conspicuously; last segment very finely serrulate at sides near apex; pygidium punctate, indistinctly carinate at middle; claws cleft, the lower portion forming an acute tooth. Length .28—.35 inch.; 7—9 mm.

Male.—Prosternum more densely punctured and subopaque, pubescent; metasternum flat, first ventral segment vaguely sulcate at middle, densely punctate, slightly pubescent.

Female.—Prosternum less closely punctate and less pubescent; metasternum less flattened; first ventral convex at middle.

Variations.—This species seems remarkably constant in form and color, varying only in size. The carina of the hind angles is at most feeble and specimens occur without any trace of it.

Hab.—Kansas to Texas.

A. jacobinus n. sp.—Form cylindrical, moderately robust in facies, faintly cupreous, inclining to plumbeous, subopaque. Antennæ rather short, scarcely attaining the middle of the thorax, piceous, slightly cupreous, serrate from the fourth joint; head convex, with a slight median depression from the occiput to

the clypeus, densely and rather roughly punctate, sparsely pubescent. Thorax very little wider than long, sides feebly arcuate, margin sinuate, hind angles rectangular, with a distinct, nearly straight carina, disc convex, without median dorsal impression, lateral depression feeble, surface rather roughly granulately sculptured; scutellum rather uneven, but without distinct transverse carina: elytra slightly sinuate behind the humeri, then nearly parallel, gradually narrowed at apical third, apices rounded, indistinctly serrulate, disc slightly flattened with a vague costa each side, between which and the suture the surface is somewhat concave, basal depressions very feeble, surface rather densely granulate, more finely in the dorsal groove, surface sparsely clothed with short, fine pubescence, apparently closer in the groove, giving an appearance of a vitta; body beneath more brassy than above; prosternal lobe rounded, intercoxal process broad, with its apex squarely truncate, propleuræ densely granulate-punctate; metasternum at sides closely punctate. Abdomen rather coarsely and moderately closely punctate, very little more densely at the sides, surface sparsely pubescent, vertical portion of the segments sparsely pubescent; last segment finely serrulate at the sides near apex; pygidium coarsely punctate, feebly carinate; claws dissimilar in the sexes. Length .24—.28 inch.; 6—7 mm.

Male.—Prosternum densely punctate and with silken hair, which extends along the middle of the metasternum; first two ventral segments slightly flattened, a little more pubescent along the middle; claws cleft close to the apex, almost bifid.

Female.—Prosternum less densely punctate and less hairy; ventral segments convex at middle; claws cleft at middle, forming an acute tooth.

No variations have been observed.

The structural characters of this species will enable it to be readily placed among those with more or less serrulate last ventral segment, non-carinate scutellum, elytral apex nearly without serrulation and hind angles of thorax but feebly carinate.

Hab.—San Diego, Cal.

A. politus Say.—Moderately elongate, slightly depressed on the dorsum, color variable from rather bright brassy to cupreous, purplish, plumbeous, bluish or greenish, moderately shining. Antennæ rather short, not reaching the middle of the thorax, variable in color, serrate from the fourth joint; head slightly convex, a feeble median depression from the occiput to the middle of the front; front coarsely granulate, occiput strigose. Thorax one-third wider than long, sides slightly arcuate, margin feebly sinuate, hind angles feebly carinate in both sexes, disc convex with two feeble median depressions, one near base and one smaller near apex, lateral oblique depression feeble, surface rather coarsely transversely strigose, punctate between the strigæ; scutellum transversely carinate; elytra sinuate behind the humeri, dilated behind the middle, more notably in the female, slightly sinuate near the apices, which are rounded and serrulate; disc slightly flattened, sometimes with a very vague costa in the male, basal depressions feeble, surface closely imbricate-granulate; body beneath more shining than above; prosternal lobe truncate or vaguely emarginate, intercoxal process

moderate, acute at tip, propleuræ densely punctate granulate; metapleuræ rugose, somewhat strigose. Abdomen finely punctured and finely transversely strigose, more densely at the sides, especially on the first two segments, vertical portion of the segments sparsely pubescent; last ventral segment finely serrulate at sides near the apex; pygidium coarsely punctate, feebly carinate along the middle: claws dissimilar in the sexes. Length .20—.34 inch.; 5—8.5 mm.

Male.—Front more densely punctured and flatter; prosternum densely punctured, hairy; claws of anterior and middle feet cleft near the apex, nearly bifid, posterior claws cleft at middle, forming a broad tooth.

Female.—Front more shining, more convex; prosternum less punctate, with short, sparse hair; claws of all the feet cleft at middle, forming a tooth.

Variations.—In recent specimens the surface is clothed with a very fine, short pubescence, which gives them a pruinose aspect, the vast majority of cabinet specimens have no pubescence.

The differences of color have given rise to several names which do not seem to be worthy of retention, even as varietal names inasmuch as the intergrading of color is so gradual as to render it impossible to separate them.

A. cupreolus Lec. was founded on a unique of rather larger size than usual, æneo-cupreous in color.

A. politus Say, is the more common form of cupreous color.

A. plumbeus Lec. founded on specimens of a dull leaden color, these intergrade with the cupreous and the green forms.

A. desertus || Lec. was founded on a single specimen of smaller size and more brilliant color than the preceding forms. The sculpture is less dense. These may be either bright brassy, blue or green.

Habits.—This species lives on Willows in whatever part of the country it is found.

Hab.—Canada and the New England States westward to the Pacific coast, Kansas, Colorado, New Mexico, Arizona, Nevada and throughout California. In the Atlantic region it extends as far south as Maryland, but no specimens have been seen from any of the southern Atlantic or Gulf States nor from the region south of the Ohio River.

A. fallax Say.—Form moderately elongate, dark olivaceous, sometimes greenish, each elytron with three small pubescent spots. Antennæ slender and long, reaching to the hind angles of the thorax, usually greenish, serrate from the fourth joint; head rather flat, with a feeble median impression from occiput to clypeus, front granulate and alutaceous, occiput slightly strigose. Thorax

very little wider than long, arcuate in front, slightly sinuate in front of the hind angles, which are acutely rectangular and with a sharply defined straight carina, margin feebly sinuate; disc convex, with a vague median depression posteriorly, lateral oblique depressions moderate, surface transversely strigose with fine, distant punctures between: scutellum transversely carinate; elytra slightly sinuate behind the humeri, feebly dilated behind the middle, apices rounded and serrulate, disc slightly flattened with a very vague costa, basal depression feeble, surface imbricate, on each elytron three round pubescent spots, basal, ante-median and one-third from apex; body beneath more brassy than above; prosternal lobe entire or subtruncate, intercoxal process gradually narrowed, acute at apex, propleuræ scabrous in sculpture, sparsely pubescent; metasternum subgranulate and transversely strigose. Abdomen sparsely punctate at middle and alutaceous, at sides somewhat strigose, vertical portion of the segments sparsely pubescent; pygidium coarsely punctate, carinate at middle anteriorly; claws dissimilar. Length .16—.24 inch.; 4—6 mm.

Male.—Head flatter, more opaque and more granulate, usually green; prosternum densely punctate and with rather long pubescence; metasternum flat, densely punctured; first two ventral segments longitudinally impressed at middle, their entire length, sparsely pubescent; claws of anterior tarsi cleft very near the apex, nearly bifid, middle and posterior claws cleft at middle, forming a broad tooth; anterior and middle tibiæ slightly mucronate.

Female.—Head cupreous or brassy, less distinctly sculptured, more convex; prosternum sparsely punctate, not hairy; metasternum slightly convex, simply punctate; first two ventral segments convex at middle; claws cleft at middle, forming a broad tooth; tibiæ not mucronate.

Variations.—Slight variations in color will be seen as usual in the dark species. The median impression of the thorax may consist of an anterior fovea or a feebly impressed median line.

When the pubescent spots are removed by abrasion, this species, especially the smaller specimens, greatly resembles *egenus*, and great care must be used in separating them, but the serration of the antennæ is quite different in the two species.

Of its habits I know nothing.

Hab.—Canada southward to Louisiana and Texas, westward to Nebraska.

A. obsoletoguttatus Gory.—Form slender, elongate, color brassy black or dark olivaceous, feebly shining, each elytron with three pubescent spaces, the middle one elongate. Antennæ slender, passing the middle of the thorax, more or less æneous, serrate from the fourth joint; head coarsely punctate, occiput strigose, front flat, with a depression at its upper part in chevron. Thorax very little wider than long, slightly narrowed at base, sides feebly arcuate, slightly sinuate near the hind angles, which are sharply rectangular and with a well

refined, straight carina, margin sinuate, disc convex, a median depression near the apex, lateral oblique depressions feeble, surface transversely strigose and punctate between the strigæ; scutellum transversely carinate; elytra slightly sinuate behind the humeri, feebly dilated behind the middle, apices rounded and rrulate, disc slightly depressed, a very vague costa each side, basal depression oderate, on each side, within the costa, are three pubescent spots, one at base, a elongate spot in front of middle, a smaller oval spot one-third from apex, usually also a small spot exterior to the costa near the end of the middle spot, surface rather closely imbricate-granulate; body beneath more shining than above; prosternal lobe rather deeply emarginate, intercoxal process parallel between the coxæ, acute at tip, propleuræ closely punctate; metasternum at sides densely and rather finely granulate-punctate. Abdomen sparsely finely punctate and alutaceous, a much denser spot of punctuation at the side of the third segment; suture between the first two segments evident at the sides, vertical portion of segments not conspicuously pubescent; pygidium coarsely punctate, carinate at middle; claws cleft near the middle, forming a broad tooth. Length .24—.32 inch.; 6—8 mm.

Male.—Front usually green, more densely punctate; prosternum densely punctured and pubescent, anterior portion of metasternum hairy; anterior and middle tibiæ distinctly mucronate; first and second ventrals rather roughly granulate at middle.

Female.—Front less closely punctate, æneous or cupreous; prosternum more shining, not hairy; tibiæ not mucronate; ventral segments simply punctate.

Variations.—No variation of moment has been observed. Badly preserved specimens are often without spots, but the elongate narrow form of the insect will make it easily known.

This species is especially notable in the long slender legs. The hind tarsi are especially elongate, being longer than the tibia, the first joint longer than half the tibia.

Habits.—Found on the foliage of Oak shrubs.

Hab.—Massachusetts westward to Illinois, south to N. Carolina.

A. scitulus n. sp.—Form of *fallax;* head and thorax brassy, elytra dark olivaceous, with pubescent spots as in *obsoleto-guttatus.* Antennæ slender, reaching the hind angles of the thorax, serrate from the fourth joint, more or less æneous; head viewed from above slightly convex, front with a broad, but shallow depression punctate and obliquely strigose, occiput longitudinally strigose, front beneath pubescent, a transverse carina at base of clypeus. Thorax a little wider than long, sides irregularly arcuate, hind angles rectangular, with a sharp straight carina, margin sinuate, disc convex, a faint ante-scutellar depression, another more faint near the apex, lateral oblique depression moderate, surface shining, transversely strigose at middle, obliquely at the sides, finely punctate between the strigæ, a narrow pubescent area along the side; scutellum transversely carinate; elytra sinuate behind the humeri and somewhat broadened behind the middle, apices rounded and serrulate, disc slightly flattened at middle

with a vague costa each side, basal depression feeble, surface imbricately sculptured with a pubescent spot in the basal depression, a larger spot behind this not reaching the middle, exterior to the end of which is a very small spot, one-third from apex a small round spot; body beneath more shining than above; prosternal lobe rather broadly and deeply emarginate, intercoxal process broad, parallel and with rounded apex, propleurae finely punctate and strigose, sparsely pubescent; metasternum at sides densely punctate and with the outer half of coxal plate sparsely pubescent. Abdomen sparsely punctate, more densely at sides of first two segments and somewhat strigose, with sparsely pubescent spaces on the first two segments midway between the middle and side and on the third segment at the side, vertical portion of segments sparsely pubescent; pygidium coarsely punctate, indistinctly carinate; claws broadly toothed at middle. Length .18--.20 inch.; 4.5--5.5 mm.

Male.—Prosternum densely punctate, finely pubescent, the pubescence extending on the front of the metasternum; first ventral segment slightly flattened at middle, not pubescent; anterior and middle tibiæ distinctly mucronate.

Female.—Unknown.

This species is not especially conspicuous among those with ornate elytra. With the form of *fallax* or *egenus*, the markings, when perfect, resemble those of *obsoleto-guttatus*, and from any of them the structural characters either of the antennæ, legs or prosternum will separate.

Hab.—The few specimens examined were collected by Belfrage in Texas, probably at Waco.

A. ornatulus n. sp.—Form of *egenus*, but a little stouter, piceous, elytra somewhat shining, ornamented with pubescent spaces, thorax opaque. Antennæ attaining the middle of the thorax, piceous, serrate from the fourth joint; head convex, with a very feeble impression of the occiput, front convex, indistinctly punctate, smoother at middle. Thorax a little wider than long, sides regularly arcuate, margin absolutely straight, not deflexed in front, hind angles rectangular, without trace of carina, disc convex without depressions, merely slightly concave along the side, surface punctate, obliquely strigose at middle, longitudinally at the sides; scutellum transversely carinate; elytra sinuate behind the humeri, broadened behind the middle, apices rather obliquely rounded without serrulation, disc depressed at middle, a very vague costa each side, basal depressions feeble, surface indistinctly imbricate, slightly strigose at the sides, with pubescent spaces of sparsely placed silvery white hair in the basal depression, a transverse band behind these, then a longitudinal band reaching the middle bending obliquely outward and backward, apical third entirely pubescent, the anterior edge oblique on each side; body beneath with distinct æneous lustre; prosternal lobe broadly and deeply emarginate, intercoxal process slightly broadened behind the coxæ and obtuse at apex, propleurae feebly punctate; metasternum at sides asperately punctate. Abdomen sparsely finely punctate, a slight pubescent area at the sides of the third segment, the vertical portions of the

segments pubescent; pygidium sparsely punctate, finely carinate along the middle; claws broadly toothed at base. Length .14 inch.; 3.5 mm.

Sexual characters.—The only points noticed in the numerous specimens examined are found in the more opaque and somewhat rugulose prosternum of the male, while it is sparsely punctate and smoother in the female.

No variations have been observed, the markings seeming very constant. In some specimens there will be observed a golden hue about the margins of the pubescent spaces.

Hab.—Southwestern Texas, no precise locality known.

A. ventralis n. sp.—Form oblong, subcylindrical, cupreo-æneous, moderately shining, elytra with faint subsutural pubescent vitta. Antennæ piceous, faintly bronzed, attaining the middle of the thorax, serrate from the fourth joint; head convex, with a faint median impression from the occiput to the clypeus, coarsely not closely punctate. Thorax nearly square, sides feebly arcuate, margin straight, deflexed in front, hind angles rectangular, without trace of carina, disc convex, without depressions either at middle or sides, not concave along the margin, surface punctate along the middle, vaguely strigose at the sides; scutellum indistinctly carinate; elytra slightly sinuate behind the humeri and dilated behind the middle, apices rounded, finely serrulate, disc convex, the basal depressions feeble, surface rather coarsely and roughly imbricate with a sparsely pubescent subsutural vitta extending from the base nearly to the apex; body beneath æneous; prosternum acutely but not deeply emarginate at middle, not wide between the coxæ, tip not acute, propleuræ punctate, sparsely pubescent; metasternum at sides transversely strigose, somewhat reticulate in certain lights. Abdomen sparsely punctate, with distant strigæ at the sides of the first two segments, subreticulate in appearance, the posterior edge of the second, and to a less degree the third segment, prolonged at middle in a short laminate process, which occupies one-third the width of the segment; claws toothed near the base. Length .13 inch.; 3.5 mm.

Unfortunately, the two specimens before me of this species present no special characters of a sexual nature. The prosternum is somewhat rugose and slightly pubescent, and the first ventral roughened at middle of base, and from these feeble characters they are assumed to be males.

The most curious character observed is in the ventral segments, and seems unique in the genus. The posterior edge of the second ventral segment is free and slightly prolonged in an arcuate manner over the next segment. The same in a less degree is observed on the third segment. This may prove to be a male peculiarity.

The sculpture of the disc of thorax viewed in certain lights seems reticulate, as in some Anthaxia, and the elytral sculpture very coarse for so small a species.

In general appearance the species resembles, somewhat, *Tuphrocerus agriloides*.

Hab.—New Mexico, no precise region known.

A. blaudus n. sp.—Rather robust, subcylindrical, slightly narrowed behind, cupreo æneous, sides of thorax with white pubescence, elytra with a vitta from base to near the apex. Antennæ passing slightly the middle of the thorax, æneous, serrate from the fifth joint; head slightly convex, a feeble median impression from the occiput to the clypeus, the latter broad at base, surface rather coarsely punctate and obliquely strigose. Thorax a little wider than long, sides regularly arcuate, slightly sinuate near the hind angles, which are rectangular and without trace of a carina, lateral margin sinuous, disc convex, without trace of median sulcus, lateral oblique impression feeble, surface rather closely punctate with feeble oblique strigæ, sides pubescent, more broadly behind; scutellum transversely carinate; elytra very slightly sinuate at middle and slightly broadened, apices rounded, serrulate, disc convex, basal depression feeble, surface rather coarsely imbricate and with a vitta of whitish pubescence from the base to the apex close to the suture; body beneath cupreo-æneous; prosternal lobe truncate, with a feeble emargination at middle, the intercoxal process narrowed from base to apex, the tip obtuse, propleuræ punctate, with scale-like white hairs and efflorescence; metasternum at sides imbricately sculptured and with the episternum and outer half of coxal plate clothed with white pubescence. Abdomen moderately closely imbricate, more roughly at the sides of the first two segments, clothed along the sides with whitish pubescence, vertical portion of first segment with white pubescence; pygidium coarsely punctate, feebly carinate; claws broadly toothed at middle. Length .25 inch.; 6.5 mm.

Male.—Prosternum coarsely punctured, sparsely pubescent; first two ventral segments roughly sculptured at middle; anterior tibia distinctly, middle tibia feebly mucronate, the posterior simple.

Female.—Prosternum less closely punctate, scarcely hairy; first two ventral segments simply punctate; tibiæ all simple.

Variations.—The three specimens before me seem to have been collected with care and have a rather dense efflorescence between the hairs, so that they seem very conspicuous. It is probable that specimens collected in alcohol or wet in any way, lose the efflorescence, and the pubescent spots will appear less distinct. There is no variation in the specimens examined.

Hab.—Tehachepi, Cal. Collected by H. F. Wickham.

A. abjectus n. sp.—Subcylindrical, slightly narrower behind, dull cupreous, each elytron with three faint pubescent spots. Antennæ scarcely passing the middle of the thorax, serrate from the fifth joint; head convex, with a broad depression from occiput to clypeus, surface rather coarsely punctate and obliquely strigose. Thorax fully as long as wide, widest one-third from apex, slightly narrowed to base, sides feebly arcuate in front, slightly sinuate posteriorly, hind angles rectangular without trace of carina, margin sinuate, disc convex, with a

linear median impression, lateral depressions feeble, the sides not explanate, surface transversely, rather roughly strigose, with punctures between the striæ; scutellum transversely carinate; elytra very feebly sinuate at sides and very little dilated behind the middle, apices rounded, serrulate, disc very slightly depressed, basal foveæ feeble, surface imbricately sculptured and with three faint pubescent spots on each side, one at base, second in front of middle, the last one-third from apex; body beneath rather more shining than above; prosternal lobe truncate and broadly emarginate, intercoxal process very little narrowed to apex, the tip truncate, propleuræ punctate and subreticulate; metasternum at sides strigose, somewhat reticulate, pubescent at its posterior angle, as is also the outer side of the coxal plate. Abdomen sparsely punctate at middle, the sides of the first two segments strigose and somewhat reticulate, the vertical portion of first segment pubescent; pygidium indistinctly punctate, carinate along the median line; claws broadly toothed. Length .24 inch.; 6 mm.

The male differs from the female in having the prosternum slightly more densely punctate and the first two ventral segments more rugose at middle. Five specimens have been examined, four of which are in the National Museum.

This species is not conspicuously marked, but among those in which the antennæ are serrate from the fifth joint it may be known by the very convex thorax, with feeble median depression, the absence of angular carina and the feeble pubescent spots of the elytra.

Hab.—Texas, precise locality unknown.

A. subcinctus Gory.—Form relatively robust, piceous with faint bronze lustre, more evident on the thorax, elytra ornate with pubescent spaces. Antennæ scarcely reaching the middle of the thorax, piceous, slightly bronzed, strongly serrate from the fifth joint; head convex, with a median depression from the occiput to the clypeus, surface relatively coarsely strigose. Thorax wider than long, sides regularly arcuate, margin sinuate, hind angles rectangular, without trace of carina, disc convex, with a rather broad but not deep median depression extending from base to apex, lateral depression well marked, extending toward the base, surface transversely strigose at middle, obliquely at sides, punctate near the margin; scutellum transversely carinate; elytra slightly sinuate behind the humeri, dilated somewhat behind the middle, apices rounded, serrulate, disc slightly flattened with a vague costa, sutural margin elevated, except at basal fourth, surface coarsely imbricate, somewhat strigose at middle, smoother near apex, a pubescent space extending from the humeri to the middle, with two interruptions, then turning obliquely outwards, a second oblique band one fourth from apex; body beneath more shining than above; prosternal lobe broadly emarginate, intercoxal process gradually narrowed, acute at apex, propleuræ sparsely punctate; metasternum transversely strigose, somewhat reticulate. Abdomen very sparsely, indistinctly punctate over its entire surface, vertical portion of segments not conspicuously pubescent; pygidium sparsely punctate, not distinctly carinate; claws broadly toothed at middle. Length .16—.18 inch.; 4—4.5 mm.

Sexual characters.—In the specimens before me I am unable to

find any well marked secondary sexual characters. One specimen, seemingly a male, has the prosternum somewhat more opaque and a little more pubescent.

Variations.—The usual variations dependent on abrasion must be expected here as elsewhere. While the vast majority of specimens have the antennæ serrate beginning with the fifth joint, one in my cabinet begins at the fourth, that is, the fourth joint more nearly resembles the fifth than the third. Such cases as this must be classed as abnormalities, and are very confusing to a systematist, or to one attempting to determine specific names with but little material.

Hab.—Canada to North Carolina, westward to Illinois. It is not recorded from the New England States, but probably occurs there.

A. putillus Say.—Form nearly of *subcinctus;* dark olivaceous bronze, moderately shining. Antennæ scarcely attaining the middle of the thorax, piceous, serrate from the fifth joint; head convex, with a feeble occipital impression, front sparsely indistinctly punctate, slightly alutaceous. Thorax one-third wider than long, sides regularly arcuate, margin sinuous, hind angles rectangular without trace of carina; disc convex, with a feeble linear median impression, lateral depressions deep along the side, surface transversely strigose, but more evidently punctate near the apex; scutellum transversely carinate; elytra extremely little sinuate at middle, apices rounded, serrulate; disc slightly depressed at middle, a feeble basal fovea, on each side a subcostiform elevation, between which and the suture on each side the elytra are vaguely channeled, surface imbricate, but not closely; body beneath usually darker, but more shining than above; prosternal lobe subtruncate, sometimes feebly emarginate, intercoxal process relatively broad, obtuse at apex; propleuræ comparatively smooth; metasternum at sides rather finely punctate and substrigose. Abdomen sparsely punctate over the entire surface and faintly alutaceous; pygidium very indistinctly punctate, not at all carinate; claws broadly toothed at middle. Length .12 inch.; 3 mm.

Male.—Front greenish, more opaque and more closely sculptured. Prosternum more closely punctate along the middle and slightly pubescent. Abdomen simple, not roughened at base.

Female.—Front æneous, more shining and more sparsely punctate. Prosternum not pubescent.

Variations.—The color is very constant. The discal costæ of the elytra vary considerably in their distinctness, and are sometimes nearly absent. In the outline of the upper surface, when viewed laterally, some are nearly straight, others quite arched.

This species is the smallest found in the Atlantic region proper, and is remarkable in having the lower angle of the eye acute.

Hab.—Canada (Pettit), Illinois, Indiana (Say).

A. abstersus n. sp.—Moderately elongate, subcylindrical, narrower behind, dark brassy bronze, moderately shining. Antennæ piceous, faintly bronzed, attaining the middle of the thorax, serrate from the fifth joint; head convex, without trace of impression, sparsely indistinctly punctate. Thorax a little wider than long, slightly narrowed at base, sides feebly arcuate, slightly sinuate in front of the hind angles, which are rectangular and without carinæ, margin nearly straight, feebly deflexed in front; disc convex, without impressions, either median or lateral, surface distantly obliquely strigose, with a reticulate appearance; scutellum not carinate; elytra scarcely sinuate at the sides, the apices rounded and serrulate; disc convex, without trace of costæ, basal depression feeble, surface imbricate, a little more roughly near the apex; body beneath as above; prosternal lobe truncate and broadly emarginate, the intercoxal process parallel and obtuse at tip, propleuræ widely reticulate; metasternum at sides with distant strigæ. Abdomen sparsely punctate, with a somewhat widely reticulate appearance; pygidium sparsely punctate, not distinctly carinate; claws broadly toothed. Length .12—.15 inch.; 3—3.75 mm.

Male.—Prosternum moderately closely punctate, sparsely pubescent; first ventral segment with a short, smooth, median groove at its posterior edge.

Female.—Prosternum sparsely punctate; ventral segments simple.

Variations.—None have been observed in the many specimens seen.

This species, like *ventralis* of the preceding series, resembles *Taphrocerus agriloides*, and in the present rather more so than in that from the fact that there is here no pubescent elytral vitta.

When the thorax is viewed from above and from behind, the sculpture has a reticulate appearance, but when seen from in front is very obliquely and not closely strigose.

Hab.—Southern Arizona. Collected rather abundantly by Morrison, and by him widely distributed in collections.

A. Leconteï Saunders.—Form rather more robust than *fallax*, dull olivaceous bronze, sometimes slightly brassy, elytra with pubescent spaces. Antennæ slightly passing the middle of the thorax, piceous with slight æneous lustre, serrate from the fifth joint; head slightly convex, or very feebly impressed median line, and a slight transverse depression below the middle of the front; some specimens, surface coarsely punctate, occiput slightly strigose; clypeus broad at base. Thorax a little wider than long, sides feebly arcuate, margin sinuate, hind angles rectangular, with a well defined straight carina; disc moderately convex, with a deep median impression composed of two foveæ united by a groove, lateral oblique depression moderately deep, surface coarsely punctate sometimes slightly transversely strigose; scutellum transversely carinate; elytra feebly sinuate behind the humeri, slightly broadened behind the middle, apices almost conjointly rounded, serrulate; disc slightly depressed at middle with a very vague costa each side, surface subgranulate, with pubescent spaces as follows: at basal depressions an indistinct broad band in front of middle, oblique

on each side, apical third vaguely pubescent, enclosing a naked spot on the suture; body beneath scarcely more shining than above, sparsely pubescent; prosternal lobe broadly and deeply emarginate, intercoxal process rather broad, narrowed at tip, propleuræ granulate-punctate, sparsely pubescent; metasternum closely punctate, slightly strigose. Abdomen sparsely punctate, slightly strigose at the sides of the first two segments, vertical portion of segments scarcely pubescent; pygidium coarsely punctate, feebly carinate; claws cleft at middle, forming a broad tooth. Length .18—.22 inch.; 4.5–5.5 mm.

Male.—Front rather more distinctly impressed. Prosternum densely punctured and pubescent. Metasternum concave, densely punctured and pubescent; anterior tibiæ distinctly mucronate, middle and posterior simple; first ventral segment slightly flattened at middle.

Female.—Front less impressed; in this sex the transverse depression is more often seen. Prosternum rather sparsely punctate, not hairy. Metasternum flat, not closely punctate, nor hairy; ventral segments simple; tibiæ mucronate.

Variations.—The color is but little variable, but the pubescence may be more or less abraded. The median dorsal depression of the thorax may be more or less deep, but still preserving the form of two foveæ united by a groove.

Nothing is known of the habits of this species, although rather widely distributed.

Hab.—Canada to Texas.

A. abductus n. sp.—Moderately elongate, dark olive bronze, feebly shining, elytra with sparsely pubescent areas forming a design. Antennæ piceous, slightly bronzed, attaining the middle of the thorax, serrate from the fifth joint; head convex, with a faint linear median impression, closely punctate and reticulately strigose. Thorax one-fourth wider than long, sides arcuate, slightly sinuate near the hind angles, these rectangular, and with a sharp, straight carina, margin sinuate, disc moderately convex, with a median broad depression, with a fine impressed line at bottom extending three-fourths from base to apex, lateral oblique depressions well marked, surface transversely and rather closely strigose; scutellum transversely carinate; elytra sinuate behind the humeri, then slightly broadened, obliquely narrowed to apices, these rounded and serrulate; disc slightly flattened, with a very vague costa each side, basal depressions well marked, surface closely imbricate, with the pubescent spaces arranged nearly as in *Leconteï*, but less densely pubescent; body beneath more shining than above and with scattered pubescence; prosternal lobe rounded, the intercoxal process moderately broad, slightly wider behind the coxæ and truncate at tip, propleuræ punctate and strigose; metasternum at sides finely punctate and not closely strigose. Abdomen finely punctate and finely strigose, the vertical portions of the segments more evidently pubescent; pygidium sparsely punctate, not distinctly carinate; claws broadly toothed. Length .18 inch.; 4.5 mm.

The three specimens of this species examined were all females, so that I am unable to state the sexual differences. They show no variation.

This species resembles *Lecontei* (*subfasciatus*) so closely, that I found it mixed with that species in my own and another cabinet. The form of the prosternal lobe will, however, separate them at once. Superficially, the sculpture of the middle of the thorax will distinguish them. In this species there is a straight depression, while in *Lecontei* there are two depressions, anterior and posterior united by a narrower depressed space.

Hab.—Texas, no special region known.

A. palmacollis n. sp.—Moderately elongate, piceous, with bronzed surface lustre, moderately shining, each elytron with three pubescent spots as in *fallax*. Antennæ piceous, slightly æneous, not reaching the middle of the thorax, serrate from the fifth joint; head convex, with a slight occipital impression, front rather coarsely punctate, occiput strigose. Thorax wider than long, sides feebly arcuate sinuate in front of the hind angles, which are rectangular and rather feebly carinate, margin straight, scarcely deflexed in front; disc convex, without median impression, lateral depressions feeble, surface very obliquely strigose, but not closely; scutellum transversely carinate; elytra feebly sinuate at sides slightly broader behind the middle then obliquely narrowed to apex, apices obliquely rounded, serrulate; disc slightly depressed, basal foveæ feeble, on each side three pubescent spots, as in *fallax;* body beneath as above; prosternal lobe obtusely rounded, intercoxal process relatively broad, truncate at tip, propleurum punctate; metasternum at sides roughly punctate and substrigose. Abdomen sparsely punctate, strigose at sides of first two segments, vertical portion of first segment densely pubescent with white; pygidium sparsely punctate, feebly carinate; claws broadly toothed. Length .12—.18 inch.; 3—4.5 mm.

Male.—Head very densely punctate, cupreous. Prosternum sparsely pubescent; first two ventral segments impressed at middle more deeply on the first.

Female.—Front less punctate, æneous. Prosternum scarcely pubescent; ventral segments simple.

The numerous specimens examined are constant in appearance, varying only in size.

There are but few species so obliquely strigose on the thorax as this one, the strigosity beginning at the middle and running diagonally forward, Those so sculptured are readily known by their structural characters.

Hab.—Western Texas and southern Arizona (Morrison).

A. felix n. sp.—Form moderately robust, subcylindrical, slightly depressed, cupreo-æneous, sides of thorax and vitta on each elytron clothed with whitish

pubescence. Antennæ short, scarcely reaching the middle of the thorax, piceous, strongly serrate from the fifth joint; head feebly convex, a vague median impression more evident in the female, surface rather roughly punctate-strigose. Thorax as long as wide (male), or a little wider than long (female), sides nearly straight ♂, or slightly arcuate ♀, hind angles rectangular, with a fine straight carina, more evident in the ♀, margin sinuous; disc regularly convex, without median or lateral depressions, surface rather coarsely transversely strigose, with a pubescent space at sides, broadest behind, enclosing the carina; scutellum transversely carinate; elytra scarcely sinuate behind the humeri, apices rounded, more acute and more distinctly serrulate in ♂; disc with a very vague costa, between which and the suture, in a slight channel, is the pubescent vitta; surface moderately closely imbricate; body beneath æneous, with fine short pubescence; prosternal lobe obtusely rounded, the intercoxal process rather broad, truncate at tip, propleuræ punctate and pubescent; metasternum at sides closely punctate and somewhat strigose. Abdomen moderately closely finely punctate, denser at sides of first segment; pygidium sparsely punctate, not carinate; claws dissimilar in the sexes. Length .22—.24 inch.; 5.5—6 mm.

Male.—Front flatter, the median impression feeble. Thorax as long as wide, the sides nearly straight. Prosternum roughly punctate, sparsely pubescent. Abdomen simple, the first segment rather rough at middle; claws on all the feet cleft very near the apex, almost bifid; tibiæ simple.

Female.—Head more convex, the median impression deeper. Thorax a little wider than long, the sides moderately arcuate. Prosternum less rugose, scarcely pubescent. Abdomen less rugose; claws broadly toothed.

Variation.—In this species, as in others already noted, there is between the pubescence a whitish efflorescence, which makes the pubescence seem denser and whiter, but when this is removed by accidental moistening the reverse is produced.

This species resembles *jacobinus*, of the preceding series, in form and color, but differs in the form of the antennæ and the presence of the pubescent vitta. It resembles still more *blandus* but that has no trace, whatever, of carina in the hind angles, and the prosternal lobe is more distinctly emarginate.

Hab.—Arizona, probably near Tucson.

A. impexus n. sp.—Subcylindrical, slightly flattened above, dull cupreo-æneous, each elytron with three indistinct pubescent spots. Antennæ not reaching the middle of the thorax, piceous, with slight æneous lustre, serrate from the fifth joint; head broadly, but feebly concave, with a median impressed line, surface closely punctate-strigose. Thorax scarcely wider than long, the sides very feebly arcuate, slightly sinuate near the hind angles, which are rectangular and distinctly carinate, margin sinuous; disc convex, with a median depression variable in distinctness, and when well marked with an impressed line at bottom

extending from base nearly to apex, lateral oblique depressions moderately well marked, surface closely transversely strigose, becoming oblique and longitudinal toward the sides; scutellum transversely carinate; elytra feebly sinuate behind the humeri, the apices rounded, serrulate; disc slightly flattened, but not sulcate, basal depressions feeble, surface closely granulate-imbricate, somewhat strigose at sides in front, each elytron with three faint pubescent spots, one at base, one in front of middle, the posterior one-third from apex; body beneath more shining than above; prosternal lobe obtusely rounded, intercoxal process rather wide, parallel, truncate at apex, propleurae closely strigose punctate; metasternum at sides coarsely transversely strigose. Abdomen moderately closely punctate, more or less strigose over the whole surface, but more coarsely at the sides of the first two segments; pygidium indistinctly punctate, feebly carinate; claws broadly toothed. Length .27—.29 inch.; 7—7.5 mm.

Male.—Front more closely punctate, but rather less concave. Thorax with a feebler median impression without impressed line. Prosternum densely punctured, sparsely pubescent, the pubescence extending on the metasternum, which is flattened and closely punctate; first two ventral segments vaguely sulcate their entire length and pubescent in the depression; tibiæ simple.

Female.—Head less closely punctate, the concavity a little more pronounced; median depression of thorax well marked with a fine impressed line at bottom. Prosternum less densely punctate, scarcely pubescent. Metasternum slightly convex; ventral segments not impressed.

Variations.—In the two specimens before me the variations have been alluded to, and seem to be sexual.

The pubescent spots of the elytra are not distinct in either specimen, except at base of elytra, but are very plainly indicated by the denser and finer punctuation. Closely resembles *floridanus*, but in the latter the pygidium is not carinate, and there is scarcely a trace of median impression of the thorax.

Hab.—Arkansas and Nebraska.

A. floridanus Crotch.—Moderately robust, subcylindrical, slightly depressed above, bright cupreo-æneous, each elytron with three pubescent spots. Antennæ attaining the middle of the thorax, piceous, serrate from the fifth joint; head slightly concave with a fine median impressed line, surface closely punctate-strigose. Thorax one-fourth wider than long, slightly narrowed at base, sides feebly arcuate, slightly sinuate near the posterior angles, which are rectangular and with an obtuse, straight carina, margin sinuous; disc convex, a flattened or slight depression in front of the scutellum, lateral oblique impressions well marked, surface transversely punctate-strigose, but not roughly; scutellum transversely carinate; elytra scarcely sinuate at the sides, the apices rounded and serrulate; disc somewhat flattened, basal depressions feeble, surface closely and rather finely granulate-imbricate, on each elytron three faint pubescent spots

arranged in the usual manner; body beneath more shining than above; prosternal lobe truncate and vaguely emarginate, intercoxal process rather broad, truncate at apex, propleuræ coarsely punctate, sparsely pubescent; metasternum at sides rather roughly strigose and punctate. Abdomen moderately closely punctate, strigose at sides of first two segments; pygidium sparsely punctate, with a smooth median line; claws cleft, forming a broad tooth. Length .28 inch.; 7 mm.

Male.—Prosternum densely punctured, pubescent; first two ventral segments very feebly impressed along the middle, scarcely pubescent; tibiæ not mucronate.

Female.—Prosternum less roughly punctate, not pubescent; ventral segments not impressed.

The two specimens before me do not vary. The types are before me and show that while the species is fairly, but too briefly described by Crotch, its position in his analytical table is erroneous. He mentions pubescent patches at the sides of the last three ventral segments, but this is merely the result of a slightly denser punctuation.

Hab.—Northern Florida, probably near Jacksonville.

A. addendus Crotch.—Moderately robust, dull cupreo-æneous, subopaque, elytra with three pubescent spots on each side, sometimes absent or very faint. Antennæ piceous, serrate from the fifth joint, reaching the middle of the thorax; head, from above, concave, a moderately deep impression from the occiput to the clypeus, surface rather roughly granulate-strigose, sparsely pubescent. Thorax very little wider than long, slightly narrowed posteriorly, sides feebly arcuate, slightly sinuate in front of hind angles, which are rectangular and with a straight, well defined carina; disc convex, with at most a feeble median impression, which may be entirely absent, lateral oblique impression moderate, surface closely transversely strigose; scutellum transversely carinate; elytra feebly sinuate at sides and but little broadened, apices rounded, feebly serrulate; disc slightly flattened, a vague channel each side of suture, basal foveæ feeble, surface moderately closely, but not roughly imbricate, the pubescent spots, when present, as in *fallax;* body beneath more shining than above; prosternal lobe obtusely rounded, with a vague sinuation at middle, intercoxal process parallel, squarely truncate at apex, propleuræ shining, indistinctly reticulate; metasternum at sides roughly punctate-strigose and with the episternum and outer side of coxal plate pubescent. Abdomen sparsely punctate, strigose at sides of first two segments, the vertical portion of first two segments densely pubescent; pygidium sparsely punctate, not carinate; claws broadly toothed. Length .15—.24 inch.; 4–6 mm.

Male.—Front with simply the longitudinal depression. Prosternum densely punctured and hairy. Metasternum flat, as densely punctured as the prosternum; first two ventral segments feebly impressed along the median line.

Female.—Front often with a crescentic, transverse impression in addition to the median. Metasternum convex, sparsely punctate; ventral segments not impressed.

Variations.—Two forms may be separated in this species, those with the pubescent spots well marked and those without them. The former variety shows some pubescence at the sides of the thorax and at the sides of the last three ventral segments. Those without spots show in nearly all the specimens the spaces with denser fine punctuation, but even this may be absent. In the typical specimens, as Crotch states, there is a tendency to form a basal and subapical spots. Between the specimens with no spots and the others I have every necessary link in my cabinet.

The median thoracic impression is, at best, faint, but in some specimens entirely wanting, in others represented by a slight antescutellar depression.

Hab.—Texas (Belfrage), Arizona.

A. lacustris Lec.—Moderately elongate, nearly parallel, slightly depressed above, color variable, dark bronze, green or blue. Antennæ piceous, not reaching the middle of the thorax, serrate from the fifth joint; head convex, a feeble median furrow from the occiput to the middle of the front, surface roughly punctate-strigose. Thorax scarcely wider than long, the sides feebly arcuate, slightly sinuate near the hind angles, these rectangular with a short fine carina, margin straight, deflexed in front only; disc convex, sometimes with a vague median impression, the lateral depressions absent, surface transversely and rather closely strigose, with fine punctures; scutellum variable, either carinate or not; elytra feebly sinuate at sides and but little dilated behind the middle, apices rounded, serrulate; disc slightly flattened, basal fovea feeble, surface closely and rather roughly imbricate; body beneath more or less blue; prosternal lobe broadly rounded, intercoxal process rather broad, truncate at apex, propleuræ strigose and punctate, sparsely pubescent; metasternum at sides transversely strigose, not roughly nor closely. Abdomen transversely strigose, not roughly nor closely; pygidium sparsely punctate, not carinate; claws broadly toothed. Length .16—.30 inch.; 4—7.5 mm.

Male.—Front somewhat more opaque. Prosternum densely punctured and hairy. Metasternum concave and hairy; first two ventral segments rather deeply impressed their whole length, the impression hairy; tibiæ simple.

Female.—Prosternum coarsely sculptured, transversely strigose, but not hairy. Metasternum slightly convex, transversely roughly strigose, not hairy; ventral segments not impressed.

Variations.—The color varieties have already been recorded. The blue forms are, however, very rare. The scutellum may be transversely carinate or not, sometimes the carina is interrupted in the middle. Fully developed specimens usually have the carina very distinct; in the small and feeble forms it is wanting. The same is true of the feeble median depression of the thorax.

This species was originally named from some small and feeble forms from the North, which, at first sight, are very unlike the larger forms from the Texan region. It is also evident that LeConte had specimens of another species along with his types as the so-called male is really that of *defectus*. At present the specimen is not found with the types, having probably been removed either by himself or Crotch.

The larger Texan forms were described by LeConte as *cuneus* from a single specimen in Ulke's cabinet. From not finding a type in the LeConte cabinet, Crotch subsequently named the specimens in my cabinet *pubiventris*.

Hab.—Illinois, Lake Superior region; Lapointe, Missouri; Texas, Arizona.

A. egenus Gory.—Moderately elongate, olive bronze, sometimes slightly greenish. Antennæ rather slender, reaching the middle of the thorax, joints longer than wide, the third obviously shorter than the fourth, piceous, slightly bronzed, serrate from the fifth joint; front flat, a very feeble median impression, densely punctate, occiput strigose. Thorax wider than long, sides not strongly arcuate, hind angles rectangular, with a well defined, slightly oblique carina, margin nearly straight, deflexed in front; disc convex, without median depression, lateral oblique depressions well marked, surface transversely strigose with fine punctures between; scutellum transversely carinate; elytra feebly sinuate at sides, slightly broader behind the middle, apices rounded, serrulate, basal foveæ moderate, disc slightly depressed, surface imbricate; body beneath rather more shining than above; prosternal lobe truncate, more or less emarginate, the intercoxal process narrowed at apex, propleuræ sparsely punctate; metasternum at sides asperately punctate. Abdomen very sparsely punctate; pygidium sparsely punctate, not carinate; claws broadly toothed. Length .14—.20 inch.; 3.5—5 mm.

Male.—Front more densely punctate, more opaque, bluish green. Prosternum densely punctured, hairy, the hair extending somewhat on the metasternum; first two ventral segments flat or feebly impressed at middle, slightly pubescent.

Female.—Front slightly more convex, the punctures coarser and less close, more shining, æneous. Prosternum not hairy; ventral segments not impressed.

Variations.—Notwithstanding the wide area over which this species is distributed, there seems to be no variation, except slightly in color and size. Some of the narrower forms with a slight greenish color resemble *otiosus* considerably, but the structure of both antennæ and claws will separate them. On the other hand, some of the forms of *fallax* deprived of pubescence are apt to be mixed with the present species, and are not easy to separate without great care, but the form of the antennæ and the flat base of clypeus in the present species will render them separable.

Of the habits of this species nothing is known.

Hab.—Canada, Massachusetts south to North Carolina, Texas and Arizona, Illinois, Dacota, Nebraska.

A. imbellis Cr.—Dull æneous, feebly shining, similar to *egenus*, but stouter. Antennæ passing the middle of the thorax, æneous, serrate from the fifth joint, the serrate joints wider than long; head convex, with a faint median furrow, surface very coarsely punctate, the occiput strigose. Thorax wider than long, slightly narrowed at base, sides feebly arcuate in front, oblique, with a slight sinuation posteriorly, lateral margin straight, deflexed in front, hind angles rectangular, with a moderately long, but not strongly elevated carina; disc convex, without trace of a median impression, lateral oblique impressions feeble, surface rather coarsely transversely strigose with punctures in the furrows; scutellum usually carinate, sometimes not; elytra faintly sinuate at the sides and scarcely dilated behind the middle, the apices rounded and serrulate, disc slightly depressed, the basal foveæ feeble, surface rather coarsely imbricate; body beneath colored as above; prosternal lobe broadly rounded, the intercoxal process rather wide and truncate at apex, propleuræ punctate, but not roughly nor closely; metasternum at sides coarsely transversely strigose. Abdomen feebly transversely strigose, more roughly at the sides of the first two segments; pygidium sparsely punctate, the median line smooth, not carinate; claws broadly toothed at middle. Length .18—.22 inch.; 4.5—5.5 mm.

Male.—Front rather less convex, with more distinct median impression and more coarsely punctate. Prosternum roughly and closely punctate, hairy. Metasternum closely punctate and slightly hairy; first two ventral segments flattened at middle, closely punctate and with short hairs.

Female.—Head more convex and more evidently strigose. Prosternum and metasternum transversely strigose, not pubescent; first two ventral segments convex, not closely punctate and not hairy.

The numerous specimens examined show no variation, except a little in size in specimens from the most remote localities.

The species resembles *egenus* somewhat, but is more robust, has shorter antennæ and an entire prosternal lobe. Specimens of *lacustris* have been seen which somewhat resemble this one, but the male characters will then readily separate them.

Hab.—Massachusetts, Dracut (Blanchard), Florida, Georgia and Texas.

A. abditus n. sp.

This species so closely resembles *imbellis* that it is deemed necessary merely to recite the differences:

Antennæ scarcely passing the middle of the thorax; thorax with a vague median depression; prosternal lobe truncate, or feebly emarginate. Length .18—.20 inch.; 4.5—5 mm.

Male.—Front greenish, subopaque, very indistinctly punctate, sparsely pubescent. Prosternum closely punctate, sparsely hairy. Metasternum slightly pubescent in front. Abdomen slightly flattened at middle of first two segments, rather roughly sculptured, not hairy.

Female.—Front brassy, more shining, feebly punctate, not pubescent. Prosternum rather sparsely punctate, not hairy. Abdomen convex at middle, sparsely punctate.

No variations have been observed. While resembling very closely *imbellis*, it will be at once known by the feeble sculpture of the head in both sexes, the median depression of the thorax and the sexual characters.

Hab.— Western Nevada (Morrison).

A. pusillus Say.—Form of a diminutive *ruficollis*; head and thorax usually æneous or cupreous, elytra purple-black (but variable), moderately shining. Antennæ reaching the middle of the thorax, piceous, serrate from the fifth joint, serrate joints wider than long; head convex, a feeble median impression from the occiput to the base of the clypeus, surface moderately closely coarsely punctate. Thorax wider than long, slightly narrowed at base, sides arcuate in front, slightly sinuate near the hind angles, which are rectangular and distinctly carinate, margin nearly straight, deflexed in front, disc convex, a broad transverse depression in front of base, so that, when viewed laterally, the median line of the thorax is more convex in the anterior half, lateral oblique depression moderately deep, surface moderately coarsely transversely strigose, with coarse punctures in the grooves; scutellum carinate or not; elytra sinuate at the sides, distinctly dilated behind the middle, apices rounded, serrulate; disc flattened, usually a vague costa on each side, a feeble concavity each side of the suture, basal depressions feeble, surface with imbricate sculpture, not rough nor close; body beneath piceous, shining, faintly bronzed; prosternal lobe truncate and broadly emarginate, the intercoxal process acutely oval at tip, propleuræ punctate and strigose; metasternum at sides strigose and subreticulate. Abdomen sparsely finely punctate, a little more coarsely at the side of the first segment; pygidium sparsely punctate, not carinate; claws broadly toothed. Length .12--.16 inch.; 3–4 mm.

Male.—Front flatter and more opaque; first ventral slightly flattened at middle and rugose.

Female.—Front more shining and rather more convex; first ventral convex and not roughened.

Variations.—The general aspect of this species is that of a diminutive *ruficollis* with the thorax less conspicuously cupreous. The thorax is often brassy with purplish spaces at the sides. Sometimes the elytra are æneous. These last forms resemble *pusillus*, but these have no carina in the hind angles of the thorax, and the disc has a distinct median impression.

This species was placed by LeConte in the group with the incurved tooth of the claws, but the claws and antennæ are both different from that series.

The name *parvus* has been suggested for this species by Saunders in "Catalogus Buprestidarum," but there seems to be no valid reason for the change. It is certainly permissible to use *pusillus* and *putillus* in the same genus.

Hab.—Kansas, Colorado and Arizona.

Bibliography and Synonymy.

AGRILUS Steph.

A. difficilis Gory, Mon. Suppl. p. 224, pl. xxxvii, fig. 215; Lec., Trans. Amer. Philos. Soc. xi, 1859, p. 244.
occidentalis Uhler, Proc. Acad. Nat. Sci. Phil. vii. p. 416.

A. obtusus n. sp.

A. fuscipennis Gory, Mon. Suppl. p. 238, pl. xxxix, fig. 230; Lec., loc. cit. p. 242.

A. ruficollis Fab., Mant. Ins. i, p. 184; Oliv., Ent. xxxii, p. 28, pl. 9, fig. 101; Hbst., Col. ix, p. 249, pl. 155, fig. 9; Say, Trans. Am. Phil. Soc. vi, p. 161; L. et G., Mon. ii, Agr. p. 60, pl. xii, fig. 78; Lec., loc. cit. p. 243.

A. lateralis Say, Journ. Acad. Phil. iii, p. 160; Trans. Amer. Philos. Soc. vi, p. 162; edit. Lec. ii, pp. 103 and 596.
Sayi Saunders, Catal. Buprest. p. 126 (name unnecessary).

A. otiosus Say, Trans. Amer. Philos. Soc. vi, p. 163; edit Lec. ii, p. 597; Lec. loc. cit. p. 244.
geminatus ♀ Say, Journ. Acad. Phil. iii, p. 163; edit. Lec. ii, p. 105.
virens Gory, Mon. Suppl. p. 259, pl. xliii, fig. 252.

A. crinicornis n. sp.

A. masculinus n. sp.

A. defectus Lec., loc. cit. p. 244.
lacustris ♂ ♀ Lec., loc. cit. p. 250.

A. arcuatus Say, Annals Lyc. N. Y. i, 1825, p. 251; Trans. Amer. Philos. iii, p. 162; edit. Lec. i, p. 387, ii, p. 596.
torquatus Lec., Trans. Amer. Philos. Soc. xi, p. 243.
fulgens Lec., loc. cit. p. 243.
obliquus Lec., loc. cit. p. 243.

A. cupricollis Gory, Mon. Suppl. 240, pl. xl, fig. 232.
arcuatus ; Lec., loc. cit. p. 242.

A. angelicus n. sp.

A. mixtus Lec., Proc. Acad. 1858, p. 70; Trans. Amer. Philos. Soc. xi, p. 248.

A. vittatocollis Rand., Bost. Journ. ii, p. 38.
frenatus Gory, Mon. Suppl. p. 239, pl. xl, fig. 231.

A. audax n. sp.

A. bilineatus Weber, Obs. Ent. p. 71; Say, Ann. Lyc. i, p. 250; Trans. Amer. Philos. Soc. vi, p. 162; edit. Lec. i, p. 386, ii, p. 596; Lec., Trans. Amer. Philos. Soc. xi, p. 251.

trivittatus Kby., Fauna, Am. Bor. Ins. p. 161.
flavolineatus Mann., Bull. Mosc. 1837, p. 110.
aurolineatus Gory, Mon. Suppl. p. 248, pl. xli, fig. 241.

A. granulatus Say, Journ. Acad. iii, p. 162; Trans. Amer. Philos. Soc. vi, p. 162; edit. Lec. ii, p. 104 and 596; Lec., Trans. Amer. Philos. Soc. xi, p. 245.
quadriguttatus Gory, Mon. Suppl. p. 228, pl. xxxviii, fig. 219; Lec., loc. cit. p. 245.
aleus Gory, loc. cit. p. 250, pl. xli, fig. 242.

A. nevadensis n. sp.
A. niveiventris n. sp.
A. pensus n. sp.
A. Blanchardi n. sp.

A. anxius Gory, Mon. Suppl. p. 226, pl. xxxvii, fig. 217; Lec., loc. cit. p. 247.
gravis Lec., loc. cit. p. 247.
torpidus Lec., loc. cit. p. 247.

A. acutipennis Mann., Bull. Mosc. 1837, p. 109; Gory, Mon. Suppl. p. 225, pl. xxxvii, fig. 216.
latebrus L. et G., Mon. ii, Agr. p. 38, pl. ix, fig. 50; Lec., Trans. Amer. Philos. Soc. xi, p. 246.
quadri-impressus Ziegler, Proc. Acad. ii, p. 267.

A. Couesii Lec., Proc. Acad. 1866, p. 384; Crotch, Proc. Acad. Nat. Sci. 1873, p. 94.
A. cavatus Chev., Silberm. Rev. Ent. v, p. 95.
texanus Crotch, Proc. Acad. Nat. Sci. 1873, p. 94.
A. concinnus n. sp.
A. Walsinghami Crotch, Proc. Acad. Nat. Sci. Phil. 1873, p. 95.
A. pulchellus Bland, Proc. Ent. Soc. Phil. iv, p. 382.
A. obolinus Lec., Trans. Amer. Philos. Soc. xi, p. 248.
A. muticus Lec., Proc. Acad. 1858, p. 70; Trans. Amer. Philos. Soc. xi, p. 248.
A. jacobinus n. sp.

A. politus Say, Ann. Lyc. N. Y. i, p. 251; Trans. Amer. Philos. Soc. vi, p. 162; edit. Lec. i, p. 387, ii. p. 596; Lec., Trans. Amer. Philos. Soc. xi, p. 248.
cupreolus Lec., loc. cit. p. 248.
plumbeus Lec., loc. cit. p. 247.
desertus Lec., loc. cit. p. 249.
solitarius Gemm. and Har. Catal. p. 1445.

A. fallax Say, Trans. Amer. Philos. Soc. vi, p. 163; edit. Lec. ii, p. 596; Lec., Trans. Amer. Philos. Soc. xi, p. 246.
zemes Gory, Mon. Suppl. p. 234, pl. xxxix, fig. 225.
impressipennis Uhler, Proc. Acad. vii, p. 415.

A. obsoletoguttatus Gory, Mon. Suppl. p. 256, pl. xliii, fig. 249.
nigricans Gory, loc. cit. p 257, pl. xliii, fig. 250.
interruptus Lec., Trans. Amer. Philos. Soc. xi, p. 246.

A. scitulus n. sp.
A. ornatulus n. sp.
A. ventralis n. sp.
A. blandus n. sp.
A. abjectus n. sp.

A. subcinctus Gory, Mon. Suppl. p. 252, pl. xlii, fig. 225; Lec., Trans. Amer. Philos. Soc. xi, p. 246.

A. putillus Say, Trans. Amer. Philos. Soc. vi, p. 163; edit. Lec. ii, p. 597.
A. abstersus n. sp.
A. Lecontei Saunders, Catal. Bupr. p. 117.
subfasciatus ‖ Lec., Trans. Amer. Philos. Soc. xi, p. 245.
A. abductus n. sp.
A. palmacollis n. sp.
A. felix n. sp.
A. impexus n. sp.
A. floridanus Crotch, Proc. Acad. Phil. 1873, p. 94.
A. addendus Crotch, Proc. Acad. Phil. 1873, p. 95.
A. lacustris Lec., Trans. Amer. Philos. Soc. xi, p. 250.
cuneus Lec., Proc. Acad. 1866, p. 384.
pubiventris Crotch, Proc. Acad. 1873, p. 95.
A. egenus Gory, Mon. Suppl. p. 258, pl. xliii, p. 251.
cephalicus Lec., Trans. Amer. Philos. Soc. xi, p. 249.
puncticeps Lec., loc. cit.
A. imbellis Crotch, Proc. Acad. Phil. 1873, p. 94.
A. abditus n. sp.
A. pusillus Say, Ann. Lyc. i, p. 252; edit. Lec. i, p. 388; Lec., Trans. A
Philos. Soc. xi, p. 244.
parvus Saunders, Catal. Bupr. p. 116 (name unnecessary).

EXPLANATION OF PLATE VIII.

Fig. 1.—Elytral markings of *A. Cousii*.
" 2.— " " *A. fallax*.
" 3.— " " *A. obsoletoguttatus*.
" 4.— " " *A. ornatulus*.
" 5.— " " *A. Lecontei*.
" 6.— " " *A. Walsinghami*.
" 7.—Form of elytron of *A. politus*, etc.
" 8.—Form of elytron of *A. difficilis*.
" 9.—Profile of thorax of *A. macer* with sinuate margin.
" 10.—Profile of thorax of *A. lacustris* (*cuneus*) with straight margin.
" 11.—Antenna of *A. obsoletoguttatus*.
" 12.— " *A. ruficollis*.
" 13.— " *A. egenus*.
" 14.— " *A. imbellis*.
" 15.—Claw of *A. ruficollis*, etc.
" 16.—Claws of *A. bilineatus*, etc.; *a*, ♂; *b*, ♀.
" 17.—Claws of *A. Lecontei*, etc.; *a*, ♂; *b*, ♀.
" 18.—Hind leg of *A. otiosus* ♂.
" 19.—Hind leg of *A. obsoletoguttatus*, etc.
" 20.—Middle tibia of *A. Walsinghami*.
" 21.—Abdomen of *A. ventralis*.
" 22.—The same in profile.

On a collection of Hymenoptera made in Jamaica during April, 1891.

BY WILLIAM J. FOX.

The collection on which this article is based was made in Jamaica, during April of the present year, by myself and Mr. Charles W. Johnson, of the Wagner Free Institute of Science, Philadelphia.

About seventy species are given herein, which will be increased to nearly one hundred when the Formicidæ and a number of species of Andrenidæ have been classified.

EVANIIDÆ.

Evania (Hyptia) sp.

Three specimens; Port Antonio. It is entirely black with the metathorax bright rufous, and the apex of the petiole banded with whitish.

ICHNEUMONIDÆ.

Hemiteles incertus Cr.

Hemiteles incertus Cr., Proc. Ent. Soc. Phila. iv, p. 22, ♀ ♂.

Port Antonio; Kingston; Bog Walk. Several ♀ ♂ specimens.

Elphosoma annulata Cr.

Elphosoma annulata Cr., Proc. Ent. Soc. Phila., iv, p. 54, ♀ ♂.

One ♀ specimen; Kingston.

Elphosoma nigrovittata Cr.

Elphosoma nigrovittata Cr., Proc. Ent. Soc. Phila., iv, p. 55, ♀.

Elphosoma sp.?

One ♀ specimen; Port Antonio.

Ophion thoracicus Cr.

Ophion thoracicus Cr., Proc. Ent. Soc. Phila., iv, p. 55.

Two specimens; Bog Walk, Parish of St. Catherines.

Ophion concolor Cr.

Ophion concolor Cr., Proc. Ent. Soc. Phila., iv, p. 56.

Several specimens; Port Antonio.

ophion flavus Fabr.

Ichneumon flavus Fabr., Ent. Syst. ii, p. 179.

Ophion flavus Fabr., Ent. Syst. Suppl. p. 236; Guér., Gén. des Ins. Hymén. pl. iii, 2e, liv., No. 7.

Numerous specimens; Port Antonio.

CHALCIDIDÆ.

Smicra nigropicta Cr.

Smicra nigropicta Cr., Proc. Ent. Soc. Phila., iv, p. 95.

Several specimens; Port Antonio.

Chalcis incertus Cr.

Chalcis incertus Cr., Proc. Ent. Soc. Phila., iv, p. 101.

One specimen; Port Antonio.

SCOLIIDÆ.

Myzine nitida Sm.

Myzine nitida Sm., Catal. Hym. Brit. Mus. iv, p. 77, ♂; Cress., Proc. Ent. Soc. Phila., iv, p. 113, ♂.

♀.—Black, sparsely clothed with pale hairs; scape of antennæ, basal half of mandibles, tegulæ and legs, except coxæ, rufous; clypeus, two spots above the antennæ sometimes confluent, a spot before anterior ocellus, a line on inner orbits, which converges on the vertex, the cheeks entirely so, being connected by a line extending across the occiput, an interrupted line on anterior portion of prothorax, an abbreviated line before its posterior margin, a large spot on dorsulum, a spot before the tegulæ, two large spots on the pleura, the anterior spot elongate, somewhat emarginate on its posterior margin, basal half of scutellum, postscutellum, a large spot on each side of metathorax, which is acutely and deeply emarginate anteriorly, and a medial line above, most of the coxæ, a large spot on each side of the abdominal segments 1–5 above, a broad band on segments 1–5 beneath, that on the first segment emarginate medially on its posterior margin, the one on the two next segments interrupted medially, all yellow; flagellum testaceous, front strongly punctured, the punctures becoming sparse towards the vertex, which is shining. Prothorax rather strongly and closely punctured, on the sides of the thorax beneath the wings, the punctures are stronger and more widely separated, the rest of thorax very sparsely punctured; metathorax above with exceedingly fine punctures, on the sides transversely striated, the striations becoming almost obliterated on the posterior face; wings hyaline, nervures and stigma black; outer margin of posterior tibiæ with a row of strong, short spurs. Abdomen smooth, shining, with a few sparse punctures about the middle of the segments, each of the segments with a transverse row of punctures, before their apical margin, the last segment is finely and longitudinally striated, bronzy in certain lights, beneath the abdomen is obscurely rufous. Length 13 mm.

Port Antonio; Annotto Bay. Three ♀ and numerous ♂ specimens

Elis (Dielis) fulvohirta Cr.

Scolia (Elis) fulvohirta Cr., Proc. Ent. Soc. Phila., iv, p. 119, ♀ ♂.

One ♂ specimen; Port Antonio.

Elis (Dielis) trifasciata Fabr.

Tiphia trifasciata Fabr., Ent. Syst. ii, p. 246.

Scolia trifasciata Klug., Weber and Mohr., Beitr. i, p. 32.

Kingston; Port Antonio. Numerous ♀ and ♂ specimens.

Elis (Dielis) atrata Fabr.

Scolia atrata Fabr., Ent. Syst. ii, p. 228.

Colpa atrata Lep. St. F. Hym. iii, p. 535.

Scolia micans Guér.. Voy. Coq. Zool. ii. pt. 2, p. 251; Beauv., Ins. Afr. et Amer. p. 258, pl. x, fig. 3, ♀.

Port Antonio; Annotto Bay. Several ♂ specimens.

POMPILIDÆ.

Pompilus cubensis Cr.

Pompilus anceps Cr. (nec. Smith), Proc. Ent. Soc. Phila., iv, p. 130, ♂, 1865.

Pompilus cubensis Cr., Trans. Am. Ent. Soc. i, p. 93, ♀ ♂, 1867–68.

Two ♀ specimens; Port Antonio; Morant Bay.

Pompilus propinquus n. sp.

♀.—Black, the abdomen with a bluish reflection, the thorax but slightly so; front convex, with a strong medial impressed line; clypeus prominent, its anterior margin strongly incurved medially, sparsely punctured, and with a few long, black hairs; posterior margin of the prothorax angular; metathorax smooth, rounded behind; wings dark fuscous, with a strong violaceous reflection, third submarginal cell triangular, the width at the top equal to one-half of the space between the second transverse cubital nervure and second recurrent nervure; all the tibiæ and tarsi spinose, those on the anterior tibiæ within, longest and fewer, the outer margin scarcely spinose, tarsal claws armed with an acute tooth near base. Abdomen on the third to fifth segments beneath thinly clothed with long, black hairs, the last segment above and beneath more thickly so. Length 10 mm.

One specimen; Kingston. Closely allied to the preceding species, but is much smaller, the violaceous reflection is not so strong, and the anterior tibiæ, as well the others, are spinose.

Pompilus æneopurpureus n. sp.

♀.—Head and thorax bluish purple, the abdomen with a strong bronzy reflection in certain lights; antennæ black, longer than the thorax; a slight longitudinal impression between the antennæ, extending to the center of the face; clypeus prominent, its anterior margin slightly incurved in the middle; head much broader than the thorax, which is a little broader before than behind; posterior margin of prothorax angular; tegulæ black; metathorax smooth, with a medial impressed line; anterior wings smoky, with a bronzy reflection, the apical margin, the submedian cell, a cloud in the marginal, first and second sub-

marginal darker; posterior wings, except apex, hyaline; tibiæ spinose, the anterior pair but slightly so on their inner margin, tarsal claws armed with a tooth near the base, the posterior tibiæ within and the tarsi in certain lights fuscous. Abdomen smooth, polished, the last segment clothed with long, black hairs. Length 8.5 mm.

♂.—Closely resembles the ♀, but is narrower and smaller, the face and clypeus are slightly tinged with green, the anterior margin of the clypeus subtruncate, the face is sparsely clothed with silvery pubescence, the anterior wings are darker, and the third submarginal cell narrower and more triangular, the legs more feebly spinose, and the apex of abdomen has a fringe of short hairs; the tarsal claws are cleft. Length 7—8 mm.

One ♀ and three ♂ specimens; Kingston and Port Antonio.

Pompilus Cressonii Dewitz.

Pompilus Cressonii Dewitz, Berl. Ent. Zeits. xxv, p. 203, t. v, fig. 6, ♀ ♂, '81.

One ♀ specimen; Kingston.

Salius opacifrons n. sp.

♀.—Black, front opaque, with a slight medial impressed line; antennæ as long as the head, thorax and first two segments of the abdomen together, the last joint bent inward medially on its inner edge, so that there appears to be two joints; anterior margin of clypeus smooth, polished, very slightly incurved; mandibles shining; posterior margin of prothorax angular; metathorax with a strong medial furrow, otherwise smooth; anterior wings subhyaline, iridescent, with a broad fuscous band at the basal nervure, and a large dark cloud in the region of the marginal, second and third submarginal, and the third discoidal cells, posterior wings subhyaline, paler towards the base; tibiæ and tarsi spinose, the anterior pair feebly so, the posterior tibiæ serrate-spinose; first joint of the posterior tibiæ at base, on its inner margin, with a cilia of short bristles, the inner spur of the posterior tibiæ at base also bristly. Abdomen slightly shining, shorter than the thorax, segments 2–5, and the last segment above and beneath with long, black hairs. Length 8–9 mm.

Six specimens; Bog Walk, Parish of St. Catherines; Kingston, Port Antonio.

This species may belong to the subgenus *Cyphononyx* Dhlb., the claws being cleft, but the metathorax is not armed with "a little curved hook on each side before the stigma."

Agenia compressa n. sp.

♂.—Black, clothed with sericeous pile, more dense and silvery on the face, thorax on sides and beneath, and the legs; tips of mandibles reddish; anterior margin of clypeus subtruncate; posterior margin of the prothorax angular; metathorax above deeply furrowed, the furrow becoming very feeble on the posterior face; wings hyaline, the anterior pair with a fuscous band enveloping the marginal, second and third submarginal and part of the third discoidal cells, a more faint band crosses the wings in the vicinity of the basal nervure, second recurrent nervure angular at about the middle, third submarginal cell larger than the second, narrowed towards the marginal and receiving the second re-

current nervure before its middle. Legs black, the tibial spurs and a spot at base of posterior tibiæ white, the anterior tibiæ and tarsi fuscous, posterior tibiæ feebly spined. Abdomen petiolate, compressed, two transverse spots on the second and third segments, and the last segment white. Length 7 mm.

Four specimens; Port Antonio.

Planiceps euferalis n. sp.

♂.—Black, clothed with silvery sericeous pubescence, more dense on the face, anterior and posterior coxæ and the metathorax. Antennæ short, thick, the second joint of the flagellum longer than the first; clypeus rounded in front; front with a slight medial impressed line; posterior margin of the prothorax subarcuate; metathorax above strongly furrowed, the posterior face depressed medially or slightly excavated; medial and posterior tibiæ rather strongly spinose, the posterior femora within very smooth and shining; wings hyaline, iridescent, the apical margin of the anteriors fuscous, second recurrent nervure received by the cubital nervure beyond the second submarginal cell the latter contracting on its upper half. Abdomen a little shorter than the thorax, shining, the basal portion of segments 2-4 above, with a band of silvery sericeous pubescence. Length 5.5 mm.

One specimen; Port Antonio. Closely allied to *P. feralis* Cr. from Florida and Texas.

Ceropales cubensis Cr.

Ceropales cubensis Cr., Proc. Ent. Soc. Phila. iv, p. 132, ♀; Trans. Am. Ent. Soc. i, p. 141, ♂, 1867–68.

Two specimens, ♀ ♂; Kingston.

SPHEGIDÆ.

Sphex ichneumonea Linné.

Var. **dorsalis** Lep.

Sphex dorsalis Lep. St. F. Hym. iii, p. 347, ♂, Sm. Cat. Brit. Mus. Hym. iv, p. 259, ♀.

Two ♀ specimens; Port Antonio. This variety can be distinguished by the petiole and a broad band on the apical half of the third and on the fourth and fifth segments of the abdomen being black.

Var. **fulviventris** Guér.

Sphex ichneumonea var. *fulviventris* Kohl., Ann. k. k. Natur. Hofm. Bd. v, p. 430.

One specimen; Port Antonio.

Sphex singularis Sm.

Sphex singularis Sm., Brit. Mus. Cat. Hym. iv, p. 261, ♂, 1856.

Two ♂ specimens; Port Antonio; Annotto Bay.

Sphex (Priononyx) thomæ Fabr.

Sphex thomæ Fabr., Syst. Ent. p. 346.
Sphex thomæ Dhlb., Hym. Eur. i, pp. 28 et 425, ♂ ♀.

One ♀ and two ♂ specimens; Kingston; Port Antonio; Annotto Bay.

LARRIDÆ.

Larra fulviventris Guér.

Lyrops fulviventris Guér., Icon. Rég. Anim. iii, p. 440.
Larrada fulviventris Sm., Cat. Hym. B. M. iv, p. 286.
Larra fulviventris Kohl., Verh. z.-b. Ges. Wien., xxxiv, p.

Three specimens; Port Antonio.

Larra vinulenta Cr.

Larrada vinulenta Cr., Proc. Ent. Soc. Phila. iv, p. 138.

Two specimens; Port Antonio.

There are at least three more species of this genus, which, at the present time, I am unable to determine with accuracy.

Tachytes insularis Cr.

Tachytes insularis Cr., Proc. Ent. Soc. Phila. iv, p. 140, ♀ ♂.

One specimen, ♂; Port Antonio.

BEMBICIDÆ.

Bembex sp.?

Five specimens, males; Kingston; Morant Bay. Seems to be closely related to *B. pallidipicta* Sm. (Ann. Mag. N. H. (4), xii, p. 300, ♀) from Mexico.

Bembex argentifrons Cr.

Bembex argentifrons Cr., Proc. Ent. Soc. Phila. iv, p. 141, ♀ ♂.

Several females; Kingston.

Monedula signata Linné.

Vespa signata Linné, Syst. Nat. i, p. 952.
Apis respiformis DeG., Ins. iii, p. 570, pl. xxviii, fig. 3.
Bembex signata Fabr., Syst. Ent. p. 361.
Monedula signata Latr., Gen. Cr. et Ins. iv, p. 100.

Five specimens, ♀ ♂; Port Antonio; Morant Bay.

MIMESIDÆ.

Psen argentifrons Cr.

Psen argentifrons Cr., Proc. Ent. Soc. Phila. iv, p. 152, ♀ ♂.

Two ♀ specimens; Port Antonio.

CRABRONIDÆ.

Trypoxylon excavatum Sm.

Trypoxylon excavatum Sm., Cat. Hym. Brit. Mus. iv, p. 380. ♀ ♂.

One specimen, ♀ ; Kingston.

Crabro crœsus Lep. St. F.

Solenius crœsus Lep. St F., Ann. Soc. Ent. Fr. iii, p. 727.
Crabro crœsus Sm., Cat. Hym. Brit. Mus. iv, p. 424.

Numerous ♂ and ♀ specimens; Port Antonio.

EUMENIDÆ.

Eumenes colona Sauss.

Eumenes colona Sauss., Guépes Sol. p. 70, ♀, 1852.

One specimen; Kingston.

Odynerus tibialis Sauss.

Odynerus tibialis Sauss., Synopsis Amer. Wasps, p. 241, ♀ ♂, 1875.

Five ♀ specimens; Kingston; Port Antonio.

These specimens agree well with Saussure's description, except that the legs are reddish fulvous. His types come from Venezuela and Haiti.

Odynerus bucuensis Sauss.

Odynerus bucu Sauss., Mon. Guépes. Sol. p. 185.
Odynerus buccuensis Sauss., Mon. Guépes. Sol. Suppl. p. 232.

Three ♂ specimens; Kingston.

Odynerus simplicicornis Sauss.

Odynerus simplicicornis Sauss., Mon. Guépes. Sol. Suppl. p. 253; Guér., La Sagra's Hist. Cuba, Ins. p. 771, pl. xix, fig. 5.

Three specimens; Kingston.

VESPIDÆ.

Polistes americanus Fabr.

Vespa crinita Felton, Philos. Trans. 1773, liv, p. 53, tab. 6.
Vespa americana Fabr., Syst. Ent. p. 370.
Vespa tricolor Fabr., Syst. Ent. p. 369.
Polistes Billardieri Fabr., Syst. Piez. p. 274.
Polistes americana Fab., id. p. 275.

Common in all localities visited.

ANDRENIDÆ.

Augochlora regina Sm.

Augochlora regina Sm., Cat. Hym. Brit. Mus. (Andrenidæ), p. 77, ♀.

Several specimens; Port Antonio.

APIDÆ.

Pasites pilipes Cr.

Pasites pilipes Cr., Proc. Ent. Soc. Phila. iv. p. 183, ♂ ♀.

One specimen; Kingston.

Epeolus vicinus Cr.

Epeolus vicinus Cr., Proc. Ent. Soc. iv, p. 185, ♀ ♂.

Nine ♀ ♂ specimens; Port Antonio.

Epeolus rufo-clypeus n. sp.

♀.—Black, the clypeus, labrur[illegible]ibles, except apical third, basal two-thirds of antennæ, tegulæ, [illegible]orax, [illegible]s and scutellum obscurely so, and legs reddish; face, cheeks, occi[illegible] line[illegible]horax, two short longitudinal lines on dorsulum anteriorly, as we[illegible] pos[illegible]or margin, a line over the tegulæ, tu-ercles, sides of thorax sp[illegible] ste[illegible]r margin of scutellum, postscutellum, spot on each side of met[illegible]erior coxæ, a somewhat angular mark [illegible] each side of first abd[illegible]ove, and a line on the apical margin [illegible] the second, third and [illegible] all pale yellow, the markings of the head and thorax palest; [illegible] of clypeus slightly incurved, the clypeus finely and closely p[illegible]nd vertex strongly and closely punctured. Thorax rather [illegible]ed, more distinctly so on the sides; scutellum rounded, slightly [illegible]edially, with a strong, blunt tooth on each side, base of metathor[illegible]an enclosed triangular space, which is very finely punctured, and with [illegible] impression; wings yellowish hyaline, the nervures yellowish ferr[illegible]l submarginal cell in one wing petiolate, in the other subpetiolate. Abdomen beneath, and the fifth segment above brownish; the enclosed space on the fifth segment very finely punctured, [illegible] with a cilia of pale hairs on its apical margin, which is truncate. Length [illegible]

One specimen; Kingston. This may be the ♀ of *E. pulchellus* Cr from Cuba.

Cœlioxys vigilans Sm.

Cœlioxys vigilans Sm., Descr. of n. sp. Hymen. p. 105, ♀ ♂, 1879.

Two specimens, ♀ ♂; Kingston, ♂; Port Antonio, ♀.

Megachile Martindalei n. sp.

♀. Black; head, thorax and first two segments of the abdomen above clothed with dark orange-rufous pubescence, that on the cheeks much paler; clypeus nearly naked, strongly punctured, with a smooth and polished central carina, its anterior margin slightly incurved, with a very slight tooth medially; mandibles with two large teeth at tip, with an acute carina before and on the apical half of the outer margin, between the inner carina and the inner margin the mandibles are rugoso striate. Antennæ black, the last joint somewhat flattened; vertex behind the ocelli finely and closely punctured. Thorax very finely punctured, beneath thinly clothed with yellowish fuscous pubescence; basal two-thirds of wings pale yellow, the rest smoky, slightly iridescent, nervures black except at extreme base of the wings, where they are ferruginous; tegulæ fu-

vous; legs black, the anterior pair and the posterior tarsi within, clothed with pubescence somewhat similar to that on the cheeks, the rest of the legs clothed with pale pubescence; basal half of tarsal spurs reddish. Abdomen shining, very finely punctured, sparsely clothed with black hairs, the apical margin of the third, fourth and fifth segments above with a line of white pubescence, beneath segments 2-5 densely clothed with long, pale pubescence, which is much darker than that on the apical margins of the segments above, the apical segment beneath is clothed with long black pubescence. Length 14—15 mm.

♂.—Differs from the ♀ as follows: the front, face and clypeus is densely clothed with pale yellow pubescence; the anterior trochanters are armed with a stout tooth; the apical margins of the abdominal segments beneath on their apical margin with white pubescence; the last segment strongly and roundly emarginate, its surface rugose. Length 14—15 mm.

Four specimens, Kingston.

This species seems to be related to *M. singularis* Cr. from Cuba. Dedicated to Mr. I. C. Martindale, of the Acad. of Natural Sciences, Philadelphia.

Megachile Poeyi Guér.

Megachile Poeyi Guér., Icon. Règn. Anim. iii, p. 450; La Sagra's Hist. Cuba, Ins. p. 778, pl. xix, fig. 10.

Six ♀ ♂ specimens; Kingston.

Megachile multidens n. sp.

♀.—Black; head very finely and closely punctured, front and vertex opaque; clypeus rather strongly punctured, with a longitudinal polished line medially. Antennæ black, basal half of mandibles, sides of face, front and cheeks, clothed with pale pubescence; dorsulum and scutellum finely and closely punctured; the suture between the dorsulum and scutellum and the posterior margin of the latter, a line over the tegulæ, the pleuræ, metathorax and legs, clothed with pale pubescence, the dorsulum and scutellum are otherwise than the parts mentioned, naked; wings hyaline, nervures black, tegulæ pale yellowish; legs black, the inner margin of the anterior tibiæ and tarsi as well as the inner side of the posterior tarsi with brown hairs. Abdomen very finely punctured, a spot on the side of the first, and the apical margin of segments 1-5 with pale pubescence, the pubescence sometimes interrupted medially, beneath the segments are clothed with pale fuscous pubescence. Length 8 mm.

♂.—The male varies in the color of the pubescence, it being usually pale or golden yellowish, but in some specimens it is colored as in the ♀, and in the number of teeth on the last segment of the abdomen; front and clypeus entirely covered with long pubescence. Antennæ long, reaching to the metathorax, black; legs black, clothed with pale pubescence, anterior coxæ unarmed, last segment concave on each side of the middle, covered with appressed pubescence, its apical margin strongly and roundly emarginate medially, with a long tooth or spine on each side, and with from one to five smaller teeth between the base and the tooth at the side of the emargination. Length 7--8 mm.

Five ♀ and eight ♂ specimens; Kingston.

Megachile curta Cress.

Megachile curta Cress., Proc. Ent. Soc. Phila. iv. p. 178, ♂.

♀.—Black, shining, front opaque, occiput and vertex shining, finely punctured, clothed with long fuscous or black hairs; base and apex of clypeus, the sides of the face and the cheeks with long, pale hairs, those on the side of the ...e mixed with black hairs, the mandibles shining, clothed with short, pale ...scous pubescence at base, and with a few erect reddish brown hairs on the ...er portions, a broad sulcus extends from near the base, which is, on the apical ...o-thirds, formed into a moderate outward curve, the sulcus extending between ...e two large teeth at the apex; clypeus shining, strongly punctured, the punc...res becoming sparse medially, at which place there is a longitudinal smooth ...d polished line. Antennæ black, the flagellum testaceous beneath; thorax ...ery finely punctured, the pu... ...s ...ing larger and more separated toward the apex of dorsulum; seen from above the dorsulum and scutellum appear nude, from the side they are clothed with short, erect, black hairs, those on the scutellum becoming longer toward the a...ical margin; tegulæ black, shining, a ...atch of hairs above and beneath the tegulæ, a much larger patch on each side ...f the metathorax white, two transverse irregular patches at apex of dorsulum ...yellowish, the rest of the thorax is clothed with pale fuscous hairs; wings hyaline, iridescent, the apical margin broadly fuscous, nervures and stigma black; legs black, clothed with pale pubescence, that on the tarsi, especially the posterior pair within, reddish brown; outer side of posterior tibiæ and first joint of the tarsi, which is slightly concave, shining, strongly rounded; tibial spurs brownish. Abdomen with exceedingly fine punctures, the first segment in front clothed with pale fuscous hairs, a patch on each side of the first segment whitish, the apical margins of segments 1–5 clothed with pale yellowish hairs, the pubescence interrupted medially on segments 1–3, sometimes that on the fourth segment is also interrupted, ventral scopa white, the sides margined with black hairs. Length 8–10 mm.

♂.—Black, shining; the mandibles, at base, armed with a strong tooth on outer edge, the face, front and clypeus thickly clothed with long pale hairs, intermingled with black; wings subhyaline, nervures and stigma black-brown; anterior coxæ armed with a strong tooth, the anterior tarsi not flattened. Antennæ reaching to the apex of first abdominal segment; abdominal segments 1–5 above with a transverse impression before the apex, those on segments 4 and 5 interrupted medially, a spot on each side of the first, and a transverse mark on segments 2–4 laterally, as well as the pubescence of the legs and abdomen beneath, white; sixth segment above slightly carinated medially; the last segment emarginate medially, with a strong depression before the emargination. Length 8–9 mm.

Var. *a*. Pubescence of the head, in front, yellow. The tooth at base of mandibles slightly longer.

Five ♀ and four ♂ specimens; Port Antonio.

This species seems to be allied, according to the description, to *M. ornata* Sm. from St. Domingo.

Three specimens; Kingston.

Megachile pedalis n. sp.

♂.—Black, elongate; front and vertex strongly and closely punctured; clypeus strongly punctured, shining medially, mandibles black; basal portion of flagellum obscurely rufous; front and cheeks clothed with long pale hairs; thorax finely punctured, sparsely clothed with pale pubescence, which is more dense on the sides and beneath, in the sutures between the dorsulum and scutellum and the scutellum and metathorax; tegulæ reddish; wings subhyaline, the apical margin but slightly darker, nervures and stigma brownish; legs ferruginous, the anterior and posterior coxæ black; the anterior femora and tarsi within, with white pubescence, that on the femora long, the rest of the legs sparsely clothed with short, brownish pubescence, anterior coxæ armed with a strong tooth. Abdomen shining, rather strongly punctured, the first segment oblique in front, concave, segments 1–5 with an apical band of white pubescence, the bands interrupted medially; last segment above rugose, its apical margin deeply and broadly emarginate; beneath, the apical margin of the first and second, and the third and fourth entirely, reddish. Length 7—9 mm.

Three specimens; Kingston.

Mellissodes trifasciata Cr.

Mellissodes trifasciata Cr., Proc. Acad. Nat. Sci. Phila. 1878, p. 208, ♀.

Port Antonio; numerous specimens.

Mellissodes mimica Cr.

Mellissodes mimica Cr., Trans. Am. Ent. Soc. ii, p. 298, ♂.

Kingston; Port Antonio. Numerous specimens. This is probably the male of the preceding species.

Xylocopa morio Fabr.

Apis morio Fabr., Ent. Syst. ii, p. 315, ♀.
Xylocopa morio Fabr., Syst. Piez. p. 338.
Xylocopa morio Sm., Trans. Ent. Soc. Lond. 1874, p. 285.

One ♀ specimen. Given to me by Mr. Henry Vendreys, of Kingston.

Exomalopsis pulchella Cr.

Exomalopsis pulchella Cr., Proc. Ent. Soc. Phila. iv, p. 191, ♀ ♂.

Numerous ♂ and one ♀ specimens. Kingston; Port Antonio.

Exomalopsis rufitarsis Sm.

Exomalopsis rufitarsis Sm., Descr. of new species of Hym. 1879, p. 126, ♀.

Three specimens; Port Antonio.

Exomalopsis sp.?

One ♂ specimen, Kingston. It agrees tolerably well with the description of *E. pubescens* Cress., from Cuba, but the pubescence is whitish and the apical margin of the wings are fuscous.

Centris [æ]morrhoidalis Fabr.

Centris næmorrhoidalis Fabr., Syst. Piez. p. 359, ♂ ; Lep., St. Farg. Hym. ii. p. 155, ♀.

Three ♀ specimens; Kingston; Port Antonio.

[C]ris sp.?

Two ♂ specimens. It agrees well with the description of *C. cras-*[*si*]*s* Sm. (Ann. Mag. N. H. (4) xiii, p. 372, ♂), but the posterior [tib]*ora* are not incrassate, and the clypeus has two white oblique [s]pots, it not being entirely white as in *C. crassipes*.

[C]entris fasciata Sm.

Centris fasciata Sm., Cat. Hym. Brit. Mus. (Apidæ), p. 377, ♀ ♂.

Two ♀ and one ♂ specimens; Kingston.

[Eu]glossa piliventris Guér.

Eualossa piliventris Guér., Icon. Règne Anim. p. 458, ♀ ♂.

♀ specimen. Taken at Bog Walk, Parish of St. Catherines.

[Eu]lona fulvipes Guér.

[Eu]lvipes Guér., Icon. Règne Anim. iii, p. 462, pl. 75, fig. 6; Poey, Hist. Nat. Cuba, i. p. 142, pl. 6, figs. 14–22.

specimens. Taken from the nest, near Kingston.

[A]pis mellifica Linné.

Apis mellifica Linné, Faune Suec. 1697.

Common at Kingston and Port Antonio.

Notes on North American TACHINIDÆ *sens. str.* with descriptions of new Genera and Species.

PAPER II.*

BY C. H. TYLER TOWNSEND.

The study of the Tachinidæ has progressed considerably of late in the line of descriptive work. Up to within a few years a large number of forms, necessitating the foundation of new genera, had remained unnoticed. Mr. van der Wulp has given us descriptions of a considerable number of these, which, however, are mainly confined to Old Mexico. Messrs. Brauer and von Bergenstamm have erected a great number of genera from all parts of the world, some of which can be employed; but many are unfortunately either based on invalid characters, or insufficiently described and without figures to enable their recognition. A few other authors have contributed isolated descriptions of genera in this group. Notwithstanding these recent additions I believe it necessary at this time to erect a number of new genera for the reception of forms herein described, which cannot be reconciled with any of the published descriptions or figures of previous genera.

The present paper is the result of a study of a considerable collection of material, all from within the limits of the United States; and will, the writer hopes, contribute toward a more accurate knowledge of our many species among these useful parasitic flies.

SIPHOPLAGIA† n. gen.

Belongs in the sub-group with *Plagia*, from which it differs principally by the elongate, slender proboscis, and absence of bristles on the sides of face. Head, thorax and abdomen of nearly equal width in the ♀ (? abdomen narrower in ♂). Eyes bare; front wide, prominent; frontal bristles strong, descending but little below the base of antennæ; a strong pair at each vertical angle directed backward, the outer bristle also directed outward; three orbital bristles, the middle one weak; first frontal bristle from the vertical pair directed outward and backward, the second inward, a little back-

* Paper I was published in the Proc. Ent. Soc. Washington, vol. ii, pp. 134–146.

† Σίφων (siphon) + Plagia.

ward, the others directed inward, decussate, especially in front; sides of face moderately broad, without bristles, but with scattered, short hairs, which extend also among the frontal bristles; face somewhat retracted, oral margin prominent, facial ridges bare; vibrissæ decussate, inserted near the oral margin; cheeks broad, one-half the hight of eyes in ♀ (? narrower in ♂), bare, with a fringe of bristles on the lower and front border, extending but slightly above the vibrissæ. Antennæ little more than two-thirds the length of the face; first joint short, second somewhat elongate, third almost twice the length of the second, not widened, rounded at the end; arista curved outward, thickened nearly to the tip, extremely fine and short pubescent, distinctly 3-jointed, the second joint elongate. Proboscis elongate, about twice as long as hight of head, geniculate, bent forward, slender and corneous, labella very slightly developed; palpi well developed, cylindrical, slightly thickened at tip. Scutellum with a decussate, apical pair of macrochætæ; a long lateral pair reaching to base of third abdominal segment; still a third shorter lateral pair. Abdomen (♀) long oval in outline, flattened, vaulted, first segment abbreviated; macrochætæ of abdomen all marginal on segments one to four. Legs moderately long. Wings with a small costal spine; apical cell ending on the front border of the wing very much before the apex, narrowly open or almost closed in the margin; hind cross-vein very oblique, arising opposite or a little behind the small cross-vein, approximating the bend of the fourth longitudinal; apical cross-vein also oblique, both nearly parallel with the hind border of wing; fourth vein with a very long stump at its angle; third vein spined on the proximal two-thirds of its extent. Type, *S. anomala* n. sp.

This genus differs from *Plagia*, as above stated, by the structure of the proboscis, and the absence of rows of bristles on the sides of the face; also by the macrochætæ being only marginal. It agrees with it in all other essential characteristics.

Siphoplagia anomala n. sp. ♀. –Black, cinereous. *Eyes* brown; face and cheeks silvery-white pollinose; front fully one-half the width of head shaded with cinereous; frontal vitta brownish, anteriorly about one-third the width of the front, widening behind where it splits on each side of the ocellar area; four pairs of ocellar bristles, a rather weak pair at the vertex directed outward and backward, but inclined forward at the point, a weaker pair just in front of these directed forward and a little outward, a strong pair farther in front directed widely outward and but very slightly forward, and a weak pair immediately outside the last directed outward and more forward, weak bristly

hairs among the bristles; first and second antennal joints reddish yellow, second black-bristly, a longer bristle on the lower front border; third joint and arista blackish, the third joint a little less than twice as long as the second; proboscis black, palpi reddish yellow, with several black bristles on underside; occiput cinereous pollinose, gray hairy, with a fringe of black bristles on orbital margins. *Thorax* and scutellum cinereous pollinose, covered above with short, black, bristly hairs and long black bristles posteriorly inclined; the thorax with two median, posteriorly divergent black vittæ, which generally become obsolete a little behind the transverse suture, and with a wider, irregularly defined, interrupted blackish vitta outside these which runs nearly to the scutellum; humeri and pleuræ cinereous polliose, covered with short black bristly hairs; the pleuræ with black bristles on the hind border posteriorly inclined, except the two lower ones which are anteriorly inclined; some bristles below humeri directed upward, outward and forward. *Abdomen* cinereous pollinose, covered with short, black, depressed bristles, with some longer bristles on the sides and beneath; first segment bearing a lateral marginal macrochæta usually with a weaker one in front of it; second with a lateral marginal one, a weaker one outside it, and a median marginal pair above; third segment with eight marginal macrochætæ, the outer ones below the lateral border; fourth segment with six marginal ones above and several intermixed with shorter bristles below. *Legs* black, more or less cinereous; femora and tibiæ black, hairy and with stout bristles, particularly the tibiæ; coxæ with posteriorly directed bristles on the forward surface; claws and pulvilli rather short. *Wings* grayish hyaline, slightly flavous at base, veins mostly flavous; first longitudinal vein spined nearly to the costa; tegulæ silvery white, with flavous borders; halteres fuscous. Length 8—9 mm.; of wing about 6 mm.

Described from three female specimens; Las Cruces, New Mexico. Taken June 9–10 on flowers of *Aster spinosus*. This seems to approach v. d. Wulp's *Plagia incognita*, but it has a long stump at the bend of the fourth vein, and the abdomen is nearly uniform cinereous pollinose instead of black with gray front borders to the segments.

GONIOCHÆTA* n. gen.

Like *Siphoplagia*, but with short fleshy proboscis, a row of bristles on the sides of the face, and short, distinctly geniculate arista. Belongs in the sub-group with *Plagia*. Head, thorax and abdomen of equal width in ♀; the abdomen of ♂ narrower. Eyes bare; front broad, prominent; vibrissæ decussate and inserted near oral margin; frontal bristles arranged as in *Siphoplagia* (except the ocellar bristles); three orbital bristles in both sexes, the middle one weaker; sides of face and front with some fine, short, scattered hairs; cheeks about one-third of eye-hight in ♀, one-fourth in ♂, bare, with a fringe of bristles on lower border; facial ridges bare; sides of face with a row of bristles descending to near the oral margin as though a continuation of the frontal row. Proboscis rather

* Γονυ (knee) + χαιτη (chæta).

short, not as long as hight of head, fleshy, labella well developed; palpi sub-filiform, very slightly thickened toward the tip. Antennæ shorter than the face (about two-thirds its length); first joint short, second somewhat elongate, third less than twice the length of the second; arista bare, short, somewhat thickened, 3-jointed, geniculate, the second joint much elongate; macrochætæ of scutellum and abdomen as in *Siphoplagia*, the longest pair on the scutellum reaching almost to the middle of the third abdominal segment. Abdomen of ♀ nearly oval, more pointed behind than in *Siphoplagia*; of ♂ much narrower, almost conical; first abdominal segment abbreviated. Wings without costal spine; posterior and apical cross-veins very oblique, parallel with the hind border of the wing; posterior cross-vein arising much before the small cross-vein, terminating in the middle between the latter and the bend of the fourth vein, which bears a very long stump of a vein; apical cell almost closed in the margin, ending very much before the tip of the wing; third vein spined very nearly its whole length, first spined all the way to costa. Type, *G. plagioides* n. sp.

This genus differs from *Plagia* principally in the geniculate arista.

Goniochæta plagioides n. sp. ♀.—Black, silvery. *Eyes* dark brown; front about five-ninths the width of head, face of equal width; front, face and cheeks silvery white; frontal vitta brownish cinereous, split posteriorly enclosing the ocellar area; two pairs of ocellar bristles intermixed with black hair, the pair behind the ocelli directed backward and a little outward, the longer curved pair in front directed outward and a little forward; first and second antennal joints and base of third, particularly the posterior basal portion, reddish yellow, arista and remainder of third joint black; second joint with a black bristle on its anterior surface, third joint a little more than one and one-half times as long as the second; proboscis brownish; palpi yellow, with scattered hairs and three black bristles on under surface near tip; occiput silvery, clothed with gray hair with a fringe of black bristles on the orbital margin. *Thorax* and scutellum silvery, clothed with short bristly hairs and posteriorly inclined macrochætæ; two narrow, median, posteriorly divergent, black vittæ begin at anterior border of thorax and become obsolete a little beyond the suture, a median vitta arising between them at the suture; a wide, less well defined vitta on each side, interrupted at the transverse suture; humeri and pleuræ silvery, latter with posteriorly directed bristles on hind border, except two lowest, the upper one of which is directed outward and upward, the lower one outward, downward and forward; some bristles below humeri directed outward, forward and upward. *Abdomen* covered with short, black, depressed bristles, first segment black; basal half of second, third and fourth segments silvery pollinose, posterior half black, shining; first segment with a lateral macrochæta on margin; second with a lateral and a median pair on margin; third segment with eight marginal macrochætæ, the outer ones on the ventral surface and apparently still others on venter; fourth segment with four marginal macrochætæ above and several intermixed with

shorter bristles below. *Legs* black, femora and coxæ more or less silvery; femora and tibiæ clothed with black hairs and stout bristles, some macrochætæ on the middle tibiæ; coxæ with posteriorly dilated bristles on anterior surface; claws and pulvilli rather short. *Wings* grayish hyaline, very slightly fulvous at base, veins mostly flavous; tegulæ nearly white, borders almost concolorous; halteres fuscous.

♂.—Differs as follows: Front and face narrower, about three-sevenths the width of head; cheeks about one-fourth hight of eyes; form narrower; abdomen narrowed, nearly conical; claws and pulvilli about same length; orbital bristles same. Length 8 mm., or slightly more; of wing 5.5—6 mm.

Described from one ♂ and one ♀; Las Cruces, New Mexico. The ♀ taken June 10th on flowers of *Aster spinosus;* the ♂ taken July 10th. This form seems at first to approach *Plagia americana* v. d. Wulp, but it is very distinct in the short and geniculate arista, and the long stump at bend of fourth vein.

Genus *Tachinodes* Br. and Bgst., Zweifl. kais. Mus. W. iv, 133. This genus, so far as I can ascertain from comparison of the descriptions, is the same as *Nemochæta* v. d. Wulp. Mr. van der Wulp's genus has priority, as it was described in 1888 (Biol. C.-A. Dipt. ii, 38). The above authors give no figure of their genus *Tachinodes*, which was erected for *Tachina hystrix* Fab. from Brazil.

Tachina spinosula n. sp. ♀ (?).—Blackish cinereous. Head a little wider than thorax, which is about same width as abdomen. *Eyes* brown, bare; front considerably more than one-third the width of head, golden or brassy-cinereous on the sides, somewhat prominent before; frontal vitta blackish, with a golden shade in some lights, hardly one-third the width of front, except behind, where it widens and splits on each side of the ocelli; frontal bristles descending about half-way down the sides of face, sparse, some fine hairs outside them; a pair of bristles at each vertical angle, the inner stout one directed strongly backward, the outer one directed outward; next frontal bristle short, directed outward and backward; next one long, directed backward; rest directed inward, hardly decussate to base of antennæ; two orbital bristles; face silvery, facial depression rather wide below, facial ridges bare, except a few bristles above vibrissæ; sides of face not wide, bare, except for descending frontal row of bristles; vibrissæ decussate, inserted near oral margin; cheeks invaded by occipital area, moderately wide, black hairy under eyes, silvery, with bristles on lower border; antennæ blackish, shorter than face; first joint short, second elongate, more or less silvery, bristly above; third joint about one and one-half times as long as second, only moderately wide, truncate, posterior apical corner rounded; arista black, thickened almost half its length, microscopically short pubescent, indistinctly 3 (?)-jointed, second joint not elongate; proboscis about as long as hight of head, brownish or blackish, considerably thickened, labella well developed; palpi orange-yellow, darker at base, slender, hardly thickened on distal two-thirds, with some long black hairs on underside; occiput cinereous, thickly gray hairy, with a fringe of black hairs on orbital margins. *Thorax* and scutellum hairy and bristly, cinereous, with four narrow dark vittæ; scutellum with

a short, decussate apical pair of macrochætæ; a long pair just outside them which would reach about to base of third abdominal segment, two more lateral macrochætæ on each side; humeri and pleuræ cinereous. *Abdomen* rather ovate, vaulted, clothed with short, black bristles; first segment somewhat shortened, entirely black; other segments blackish, more or less silvery or cinereous; first t with a median marginal pair of macrochætæ; second with a median nd two median marginal pairs; third with a median discal pair and eight ng marginal macrochætæ above, some shorter ones below; anal segment with median discal pair, surmounted by a tuft of rather short macrochætæ. *Legs* ackish, black-hairy, femora and tibiæ slightly silvery, latter with stout bristles; vs and pulvilli a very little elongate. *Wings* a little longer than abdomen, erately narrow, grayish hyaline, slightly pale tawny at base, with small costal e, third vein with a few spines at base; apical cell nearly closed in the marwell before tip of wing; fourth vein bent at an angle, with a wrinkle at d; hind cross-vein nearly straight, oblique, nearer to bend of fourth vein; nlæ nearly white, margins slightly yellowish; halteres fuscous, yellowish at Length 6 mm.; of wing 4.5 mm.

ribed from one specimen received from Mr. Chas. Robertson, nv Ill. This is a good, typical *Tachina* in the sense of ner; the only difference being in the nearly closed apical cell. ubtless, further specimens will show the apical cell to be normally nore open.

Tachina aletiæ Riley, Can. Ent. xi, 162.

As the eyes are described "thinly pubescent," this is not a *Tachina*. Besides, the third antennal joint is said to be "three or four times the length of the second," while in *Tachina* it is at most twice the length of the elongate second. The description is insufficient to indicate the genus. The surmise would be that the species belongs in *Exorista*.

Tachina (*Masicera*) *armigera* Coquillett, Ins. Life i, 332.

This species should evidently be referred to *Masicera*.

Pachyophthalmus aurifrons n. sp. ♂.—Blackish, cinereous. Head a little wider than thorax, abdomen a little narrower. *Eyes* large, occupying more than two-thirds the front surface of the head, brown, bare; front about one-fifth the width of head, narrowly produced beyond the eyes, face wide from antennæ to oral margin; sides of face and front golden, especially when viewed from behind, shading to dark on vertex; frontal vitta very narrow, blackish, widened and pronged behind enclosing the ocelli; frontal bristles descending only to base of antennæ, rather thick, nearly all equally strong, in a double row, the outer row weaker, the most of the inner row directed inward and forward, decussate; both bristles of the pair at vertical angles directed outward, the inner one longer and directed more backward; the usual two pairs of ocellar bristles intermixed with weak hairs; facial depression and cheeks silvery, cheeks moderately wide, invaded by the cinereous, black hairy occipital area

bristly on lower border, otherwise bare; sides of face narrow, bare; facial ridges bristly for a short distance above vibrissæ, which are decussate and inserted a little above oral margin at a constriction of the facial ridges; antennæ very short inserted below middle of head, blackish or brown; first joint short, second much longer, bristly in front with a longer bristle before apex, third joint but little longer than second; arista thickened for little less than half its length, with some microscopic very short pubescence, black, 3-jointed, second joint not elongate; proboscis moderately stout, about as long as hight of head, black, brown at tip, labella well developed; palpi rather slender, hardly thickened toward tip, blackish, with several black bristles on under surface; occiput cinereous, black hairy, brownish-cinereous around the borders, with a fringe of black hairs on orbital margins. *Thorax* and scutellum cinereous, with three wide, brownish cinereous vittæ terminating at scutellum; thorax sparsely hairy, with very few bristles; scutellum with an apical, decussate pair of macrochætæ reaching beyond base of second abdominal segment, two lateral ones on each side in front of the apical pair; humeri and pleuræ light cinereous. *Abdomen* conico-ovate in outline, first segment not shortened; color black, unevenly cinereous pollinose, black-hairy, with weak macrochætæ only marginal; first two segments each with a median pair of macrochætæ and a lateral macrochæta-like bristle; third segment with about ten, anal with about eight macrochætæ. *Legs* black, femora slightly cinereous, long-hairy, middle and hind tibiæ bristly; claws and pulvilli elongate. *Wings* a little longer than abdomen, narrow, without costal spine, grayish hyaline; apical cell open, ending a little before tip of wing; fourth vein bent at an angle, with a well-defined wrinkle at the bend; hind cross-vein not straight, nearer to the bend of fourth vein; tegulæ grayish white, halteres flavous.

♀.—Differs only in the considerably shorter claws and pulvilli. The front is about the same width. Length 5½—6¼ mm.; of wing 4—4⅝ mm.

Described from one ♂ and three ♀ specimens received from Mr. Charles Robertson, Carlinville, Ill. Differs from Schiner's description of *Macronychia* as follows: The sides of face are narrow and bare; the front is rather narrow, and of equal width in both sexes; the arista is seen to be distinctly 3-jointed under a high-power lens. It belongs to *Pachyophthalmus* Br. and Bgst. as separated by them from *Macronychia;* and on account of still other differences beside those mentioned above may perhaps better be located in the new genus. It has the front narrower than in *Miltogramma.*

Miltogramma flavicornis n. sp. ♂.—Black, cinereous and reddish. *Eyes* light brown, bare, facets larger in front; front a little over one-fourth width of head, rather prominent before, brassy or slightly golden, with some short, weak hairs outside the frontal bristles; face much wider than front; frontal vitta brownish, very narrow before, widening toward ocelli, where it divides into a prong on each side; face and cheeks silvery-white, facial depression occupying one-half the width of face, sides of face, therefore, moderately wide, bare; frontal bristles descending only to base of antennæ; a pair of posteriorly directed bristles at each vertical angle, the outer shorter ones directed also outward; next frontal bristle directed mostly backward, rest directed inward, decussate; four

(?) orbital bristles, the posterior one directed backward, the three others forward (in the only ♂ under observation there are three orbital bristles on one side and the forward one is directed backward like the posterior one, while on the other side there are four orbital bristles and only the posterior one is directed backward); the usual two pairs of ocellar bristles, front pair directed strongly forward and somewhat outward, the shorter hind pair directed a little outward; cheeks wide, invaded under the eyes by the occipital area, otherwise bare, with ...stles on lower and forward borders; vibrissæ decussate, inserted well above the oral margin at a constriction of the facial ridges, which are bristly for a short distance above them; face hardly straight, a little oblique, epistoma hardly prominent; antennæ a little more than one-half length of face, flavous, first joint extremely short; second of moderate length, well clothed with short, black bristles, and with a long straight bristle ... ont border; third joint about twice ... length of second, not widened, light ... avous; arista black or dark brown, ... save for a microscopic pubescence, thi... ened about half its length, distinctly ...pointed, the second joint a little elong...; proboscis black, about as long as ...ght of head, not thick, labella considerably developed; palpi flavous, rather ...g, slender, thickened at tip, with several fine, black bristles on under surface; ...t cinereous, silvery-bordered, black-hairy, with fringe of black hairs on ... margins. *Thorax* and scutellum cinereous with a sort of brassy tinge, ...y, with but few bristles on thorax mostly behind; a median pair of narrow, ...e or less indistinct, sometimes sub-obsolete dark vittæ on thorax; scutellum ...h an apical pair of macrochætæ, which are decussate or barely so, and reach ...rly to middle of second abdominal segment, and two lateral macrochætæ on ...ch side; humeri and pleuræ cinereous. *Abdomen* rather short, conical, clothed ...ith appressed black bristles; first segment hardly shortened, blackish, reddish ...below and on the sides, sometimes above on the hind margin except in middle; second segment all reddish or orange, covered with a silvery sheen, except a median black vitta very narrow in front and much widened behind; third segment reddish in front, silvery, broadly blackish behind, the posterior widened portion of the median vitta more distinctly shining black; anal segment broadly silvery in front, the median posterior portion blackish; the silvery pollen of the segments has much of a golden tinge in some lights, especially on the anal segment; venter mostly orange, blackish at anus; first and second segments without macrochætæ; third segment with about eight rather weak, marginal macrochætæ, the outer ones only a little stouter than the bristles of the abdomen; anal segment with about six similar, marginal macrochætæ. *Legs* black, femora more or less silvery cinereous, femora and tibiæ bristly; claws and pulvilli elongate. *Wings* grayish hyaline, without costal spine, third vein with a small bristle at base; apical ... open, terminating considerably before tip of wing, fourth vein bent at an angle with a wrinkle appearing like a stump; hind cross-vein a little curved, well approximated to the bend of the fourth; tegulæ nearly white, halteres somewhat fuscous.

♀.—Differs in having the claws and pulvilli short. The front is nearly the same width, or slightly narrower. Length 6–6.5 mm.; of wing 4.5–5 mm.

Described from two specimens from Mr. Charles Robertson, collected near Carlinville, Ill., which I am confident are ♂ and ♀ of the same species, although both of them have the facets of the eye

enlarged in front, and the one with the short claws seems to have the front slightly narrower. The claws of the other are very elongate.

I have a very much smaller ♂ received from Mr. Robertson with the above, which is only 4.5 mm. long. It has the claws and pulvilli elongated and very closely resembles the larger ♂, which is 6.5 mm long. I hesitate to describe it from one specimen, as it seems to differ only in its very much smaller size and darker abdomen. The abdomen is but slightly reddish on sides of second segment, rest blackish, silvery pollinose. The arista, however, is not so distinctly jointed. It differs from the following two species in its brassy or golden front, and long flavous third antennal joint. In case it is recognized from this description and found to be distinct, it may be called *M. similis*.

The only differences between the above described *Miltogrammas* and Schiner's generic description are that the arista is quite distinctly 3-jointed, and the third antennal joint is about twice the length of the second.

Miltogramma argentifrons n. sp. ♂.—Differs from *M. flavicornis* as follows: Smaller, without red on abdomen. *Front* silvery, including vitta, sides darker in some lights; only three orbital bristles; frontal bristles not so numerous or closely set, rather sparse; antennæ entirely dull blackish, except apical rim of second joint, which is light yellowish, third joint scarcely longer than the second; arista black, thickened only at base, bulbous, indistinctly jointed; sides of face finely hairy; facial depression narrow, scarcely any bristles on facial ridges above the vibrissæ; palpi blackish or dark brown; apical scutellar pair of macrochætæ sometimes not, but usually decussate. *Abdomen* blackish or dark brown, light cinereous pollinose, no distinct median vitta; first segment with a weak lateral macrochæta on the margin; second with a lateral marginal one and a median marginal pair; third segment with eight marginal, and anal segment with six marginal, as in the above species. Claws and pulvilli elongate. *Wings* smaller; halteres flavous. Length 4—5.5 mm.; of wing 3.5--4.5 mm.

Described from four ♂ specimens received from Mr. Charles Robertson, Carlinville, Ill. One of these specimens is much larger (5.5 mm.) than the three others (4–4.5 mm.), and also differs in having a median macrochæta (its mate probably lost) on margin of first abdominal segment. The sides of the face are only very slightly hairy. It does not otherwise differ appreciably.

Miltogramma trilineata v. d. Wulp, Biol. C.-A. Dipt. ii, 89. One specimen from S. Illinois (Robertson) I believe should be referred to this species. It much resembles, but is larger than *M. argentifrons* Towns.

Miltogramma cinerascens n. sp. ♀ (?)—Differs from *M. flavicornis* as follows: Smaller, wholly golden-cinereous. *Front* narrower, frontal bristles coarse, less numerous; three orbital bristles; front, face and cheeks light golden. Sides of face finely hairy; frontal vitta a little deeper golden, blackish toward antennæ. Antennæ dull blackish, second joint reddish at tip, third joint only a little longer than second; arista black, thickened only at base, bulbous, rather pointed; facial depression narrower, sides of face slightly wider, hairy bristles on facial ridges above vibrissæ; proboscis black, brown at tip; palpi stouter, club-shaped, light brown, in one specimen dark brown, darker at base. *Thorax*, scutellum and abdomen almost entirely cinereous, the abdomen with more of a golden reflection, hind borders of the segments usually darker; a weak lateral macrochæta on margin of first abdominal segment; second segment with a lateral marginal pair and a median marginal pair; third with [illegible] eight, and anal segment with six marginal macrochætæ. Claws and pulvilli only slightly elongate. [illegible] smaller, halteres flavous. Length 4.5 to nearly 5 mm.; of wing 3½—3¾ mm.

Described from three specimens received from Mr. Charles Robinson, Carlinville, Ill.

Insicera nigrita n. sp. ♂.—Black, shining, somewhat cinereous. Thorax and abdomen about same width, head a little wider. *Eyes* brown, bare; front about one-third the width of head, considerably produced before, face much wider; front and face silvery pollinose, cheeks toward oral margin narrowly reddish or brownish; frontal vitta blackish, about one-third width of front, enlarged behind enclosing ocelli; frontal bristles descending about to base of third antennal joint; a pair of bristles at each vertical angle, the inner long one directed backward, the outer short one directed outward; next two on each side directed backward, the posterior one also outward, remainder directed inward, more or less decussate; no orbital bristles; a row of bristly hairs outside the frontal bristles; ocellar area with a pair of rather strong bristles in front directed forward and a little outward, and a very short pair behind at the vertex; sides of face moderately narrow, bare; cheeks replaced beneath the eyes by an extension of the occipital area, bordered below by some strong bristles; vibrissæ decussate, inserted almost on the oral margin; face strongly oblique, receding; facial depression rather wide, considerably hollowed, a little elongate; facial ridges with a few bristles above the vibrissæ, surmounted by several fine hairs; antennæ shorter than the face, blackish; first joint short, second a little longer, bristly before; third about four times the length of the second, a little widened, truncate at apex, the posterior corner rounded; arista black, minutely pubescent, thickened more than half its length, apparently only 2-jointed, the basal joint very short; proboscis black or brownish, short, thick, fleshy, not so long as height of head, labella well developed; palpi blackish, rather thick, curved, club-shaped, short hairy with several longer hairs on lower surface before tip; occiput black, more or less cinereous, black hairy with fringe of bristly hairs on orbital margins. *Thorax* and scutellum black, somewhat cinereous, black hairy and bristly; thorax with a median pair of narrow, posteriorly divergent, blackish vittæ in front, becoming obsolete about the suture; two lateral pairs of stout macrochætæ on scutellum, the hind pair reaching nearly to base of third abdominal segment, apical pair directed almost straight upward and curved inward, strongly decussate; humeri and pleuræ cinereous or slightly silvery. *Abdomen*

oval, hardly vaulted, black, shining, covered with short depressed black bristles, covered with short depressed black bristles, first segment a little shortened, second to fourth segments faintly rather broadly silvery at base; macrochætæ rather stout and abundant, first segment with a median marginal pair, and one lateral marginal macrochæta; second segment with a median discal and marginal pair, and a lateral marginal one; third segment with a median discal and marginal pair, a lateral marginal pair each side, several marginal on venter, and some shorter subdiscal and discal ones on sides; fourth segment well armed with discal, subdiscal and marginal macrochætæ. *Legs* moderately long, black, faintly cinereous or silvery; femora a little, tibiæ strongly bristly, especially middle and hind pairs. Claws and pulvilli elongate. *Wings* but little longer than the abdomen, without costal spine, grayish hyaline, extreme base and veins slightly flavous; apical cell ending before tip of wing, closed in border; fourth vein bent at an angle, without stump or wrinkle; hind cross-vein nearly straight, oblique, a very little approximated to the bend of the fourth vein; tegulæ nearly white, halteres fuscous. Length 6 mm.; of wing 4.5 mm.

Described from one specimen received from Mr. Chas. Robertson, Carlinville, Ill. This belongs in the subgenus *Ceromasia* Rond. and is very near *M. luctuosa* v. d. Wulp. But it is more black, very faintly cinereous, and the apical cross-vein is distinctly curved or bowed.

Masicera sordicolor n. sp. ♂.—Cinereous. Head, thorax and abdomen nearly equal in width. *Eyes* brown, bare; front at vertex about one-fourth width of head, widening before, prominent, face much wider; frontal vitta black, nearly equal in width, enclosing the ocelli; frontal bristles descending about to base of third antennal joint, a strong one at each vertical angle, all the rest except two last ones directed inward and mostly decussate; no orbital bristles; a very few scattered fine hairs outside the frontal rows; two pairs of ocellar bristles, the forward pair directed inward and forward, decussate; face, cheeks and sides of front silvery-cinereous; sides of face moderately narrow, bare; face oblique, receding, facial depression moderately wide, facial ridges bare, except a few bristles just above the vibrissæ, which latter are decussate and inserted very much above the oral margin; cheeks slightly invaded by occipital area, black-hairy below posteriorly, with bristles on lower and forward margins; antennæ considerably shorter than the face, narrow, brownish, third joint slightly yellowish at base, second joint bristly before, first joint very short, second a little elongate, third about twice as long as second; arista blackish or brownish, thickened on its basal two-sevenths, microscopically pubescent, apparently 2-jointed, basal joint not elongate, proboscis moderately stout, brownish, labella well developed (proboscis not extended in this specimen), palpi orange-yellow, club-shaped, thickened at tip, black-bristly above and below; occiput cinereous, slightly gray hairy near center, black-hairy outside with a fringe of black hairs on orbital margins. *Thorax*, scutellum, humeri and pleuræ cinereous, hairy and bristly; thorax with four moderately narrow, dark vittæ, the outside pair obsolete in front and interrupted at the suture; scutellum with an apical, nearly straight pair of macrochætæ, three shorter lateral ones on each side, and one at forward angle. *Abdomen* conico-ovate, somewhat flattened, entirely cinereous, covered with short black hairs, first segment considerably shortened, macrochætæ

all weak; a median marginal pair, and a single lateral marginal macrochæta on ch side on first segment, a lateral and a median marginal pair on second segnt, third segment with about ten marginal ones; anal segment with some weak al and marginal macrochætæ. *Legs* blackish, femora and tibiæ somewhat eous, bristly, the tibiæ more strongly so. Claws and pulvilli very long. rish hyaline, longer than abdomen, moderately wide, with only two nger costal spines at termination of auxiliary vein, third vein not base, apical cell open, terminating but little before tip of wing, bend arth vein rounded, without stump or wrinkle, hind cross-vein sinuate, er to the bend of fourth vein, tegulæ smoky white, halteres flavous. Length nm.; of wing 6.5 mm.

Described from one specimen received from Mr. Chas. Robertson, linville, Ill. This species I have located temporarily in *Masicera*, ough it does not quite agree with the characters of that genus. apical cell is opened only a little before the wing's tip, and the is rather narrower than is usual in *Masicera*. It apparently roaches *Telothyria* v. d. Wulp, but differs from it by the prominnt front, receding face and distinctly 2-jointed arista. Additional cimens will be needed to decide its location.

HYPERTROPHOCERA[1] n. gen.

longs in the *Tachininæ* s. str., in section with bare eyes and ical cell closed in the margin. Head, thorax and abdomen nearly me width. Eyes bare, extending a little more than two-thirds the distance to the oral margin. Front nearly one-half the width of head, face wider; frontal bristles descending in a single row close to facial ridges as far down as lower border of the eyes: the bristles at the vertical angles and next one on each side directed backward, rest above antennæ directed inward, those below antennæ directed downward; three orbital bristles, and sometimes other smaller bristles intermixed. Front almost in a horizontal plane, strongly projected forward. Sides of face rather wide above, narrower below, bare except for the row of frontal bristles; cheeks bare, wide, nearly one-half the eye-hight, with some bristles on lower border; face strongly oblique, receding, facial depression very long, narrow, facial ridges bare; vibrissæ inserted on oral margin, not very long, decussate. Antennæ about as long as the face; first joint erect, rather short; second joint about same length; third joint not much widened, but considerably thickened, very long, fully ten times the length of the second, apex angular on front border, rounded behind; arista distinctly 3-jointed, microscopically pubescent, thickened its whole

[1] Ὑπερτρόφος (hypertrophied) + κεραία (antenna).

length, rather long, the second joint slightly longer than thick. Proboscis short, hardly one-half as long as hight of head, fleshy, labella well developed; palpi well developed, a little thickened at tip. Apical pair of scutellar macrochætæ not decussate, reaching only the second segment; a small pair in front of these, and a lateral pair nearer the suture. Abdomen rather broad, ovate, somewhat vaulted, first segment not abbreviated; macrochætæ marginal on third segment, discal and marginal on fourth (sometimes the second segment with some longer lateral bristles, which appear like macrochætæ). Legs not elongate, rather slender. Wings with a small costal spine, third vein spined at base; apical cell closed in margin a little before the tip of the wing; fourth vein bent at an obtuse angle, without stump or wrinkle at its bend; hind cross-vein sinuate, slightly nearer the bend of fourth vein. Type, *H. parvipes* n. sp.

This genus can hardly be confused with *Phorocera*, to which it bears some resemblance. The facial ridges are bare, but the frontal bristles descend in a row just outside the facial ridges, and near enough to cause reasonable doubt as to whether they should be considered ciliate. Besides this distinction, the eyes are bare, and the apical cell is closed.

Hypertrophocera parvipes n. sp. ♀ (?).—Grayish or cinereous. *Eyes* very dark brown, front and face silvery white pollinose, cheeks inclining to flesh color, frontal vitta broad, very light grayish brown, enclosing the ocelli behind; antennæ entirely light brownish yellow, first joint a little more deeply colored, the second joint with some black bristles, arista black; proboscis brownish yellow, partly blackish behind toward base, palpi brownish yellow, black bristly; occiput cinereous, black hairy, fringe on orbital margins not so well defined. *Thorax*, humeri and pleuræ cinereous, with short black hairs and posteriorly directed black bristles; scutellum cinereous, widely brownish yellow on hind border. *Abdomen* light brownish yellow, silvery pollinose, tawny toward the hind margin of segments, sutures lighter, with a broad median cinereous pollinose vitta interrupted at the sutures and indistinct in some lights, entirely covered with short, black, appressed bristles; ten marginal macrochætæ on third segment, and about as many each of discal and marginal on last segment; first and second segments without macrochætæ, except some macrochæta-like bristles on side of second segment. *Legs* blackish, brownish yellow at joints, femora cinereous; coxæ, femora and tibiæ bristly; tarsi rather delicate, claws and pulvilli short. *Wings* subhyaline, slightly grayish, veins light brownish or tawny; tegulæ white; halteres brownish yellow, knobs whitish. Length 7.5 mm.; of wings 6 mm.

Described from one specimen, taken July 8th; Las Cruces, N. M.

Aphria ocypterata n. sp. ♂.—Much the facies of an *Ocyptera;* black, silvery, abdomen reddish on sides. Head, thorax and abdomen nearly equal in

width. *Eyes* brown, bare (except several microscopic, extremely indistinct hairs on lowest portion); front about one-third width of head at vertex, widening before, prominent, frontal bristles strong and thick, descending a little below base of antennæ, about to base of third antennal joint; one stout bristle at each vertical angle directed backward and slightly outward; next frontal bristle much shorter, directed backward; next stout, directed backward and slightly inward, rest directed inward, decussate to base of antennæ, no orbital bristles; two pairs of ocellar bristles, posterior pair shorter, nearly erect, pointed forward at tip, the forward pair long, curved strongly forward and a little outward; some fine hairs on front outside the frontal bristles; front, face and cheeks silvery white, the sides of front appearing bluish in some lights, frontal vitta yellowish brown, of equal width; sides of face of moderate width, bare below frontal bristles; cheeks one-third eye-hight in width, bare except a few hairs on lower posterior portion, with strong bristles on lower borders; face oblique, receding, epistoma prominent, facial ridges bare, vibrissæ inserted a short distance above the oral margin, slightly decussate; antennæ black, first joint short; second joint elongate, somewhat silvery; third joint widened, about one and one-half times as long as second; arista short, black, minutely pubescent, thickened more than half its length, distinctly 3-jointed, second joint elongate; proboscis black, long, rather slender, straight, more than twice as long as hight of head, corneous, labella but little developed; palpi light yellowish, slender, slightly thickened and darker at tip, black hairy; occiput convex, silvery, with grayish hair in centre, and a fringe of black bristles on orbital margins. *Thorax* and scutellum bluish black, silvery, more so on humeri and pleuræ, with macrochætæ and fine black hair; scutellum with a subapical pair of macrochætæ, not decussate, reaching nearly as far as to base of third abdominal segment; a pair of decussate bristly hairs are situated between them and represent the apical, decussate macrochætæ; a lateral macrochæta near the forward border of scutellum. *Abdomen* very elongate-oval, vaulted, first joint shortened; color shining black, bases of second to fourth segments more or less widely silvery, sides of second segment broadly orange-red (except sometimes hind margin) extending on the segment in front and behind; abdomen covered with short, black, depressed bristles and stout macrochætæ, the latter only marginal, except on last segment; first segment with one lateral macrochæta; second with a single lateral one and a median pair; third with eight above, and about as many weaker ones below; fourth segment with discal and marginal macrochætæ interspersed with shorter, stout bristles, producing quite a spiny appearance. *Legs* black, femora and tibiæ slightly silvery, quite bristly, especially the middle and hind tibiæ; claws and pulvilli elongate. *Wings* grayish hyaline, slightly yellowish at extreme base, just as long as abdomen, with a strong costal spine, third vein spined more than half its length; apical cell closed in the border, ending considerably before the tip of the wing; curvature of fourth vein rounded, without stump or wrinkle, hind cross-vein oblique, not straight, about in the middle between the small cross-vein and bend of fourth vein; stump of fifth vein strong, nearly reaching the margin; tegulæ white, halteres light yellowish.

♀. A female which I refer to this species differs as follows: Eyes more noticeably, microscopically hairy on lower portion; front wider; vibrissæ more decussate; two orbital bristles directed forward, and, particularly the front ones, outward; frontal bristles less thick; third antennal joint no longer than second; bristles on lower border of cheeks much weaker; sides of first abdominal segment broadly orange; claws and pulvilli short. Length 7 mm.; of wing 5 mm.

Described from two specimens; a ♂ from Prof. J. M. Aldrich, Brookings, South Dakota, and a ♀ from Prof. O. Lugger, Minn. (?) have preferred to locate this species in the genus *Aphria*, although in some features it closely approaches *Olivieria*, but differs from it also in others very essentially. The proboscis is long, but hardly bristle-like and not horizontally protruded. It is straight and perpendicularly extended, of about the same size and length as in *Ocyptera*, but, unlike that genus, possesses well-formed palpi. The eyes are extremely thinly pubescent and the apical cell closed in the margin, both of which characters lead to *Aphria* in Schiner's table, but are denied it in his generic characterization. From *Olivieria* it differs in the receding (not almost perpendicular) face, in the longer and more slender proboscis, and in the absence of discal macrochætæ on the abdominal segments.

Nemoræa masurius Wlk., *N. clusides* Wlk., and *N. trixoides* Wlk. Mr. van der Wulp has called attention to the fact (Biol. C.-A. Dipt. ii, 47) that none of these three species belong in the genus *Nemoræa*, since the eyes in all of them are bare.

Exorista ciliata n. sp. ♂.—Head rather small, not as wide as thorax, abdomen wider. *Eyes* reddish brown, thickly pubescent; front at vertex and middle hardly more than one-seventh the width of head, widening a little before, face much wider; frontal bristles in a single row, descending nearly to base of third antennal joint, front thickly fine hairy outside the rows of bristles; the pair of bristles at vertical angle very short, the inner one longer; no bristles in frontal row for nearly one-half way from vertical border of occiput to base of antennæ, only fine black hair; rest of space occupied by frontal row, the bristles directed inward, decussate, except below antennæ; occipital area finely black hairy, with two pairs of short bristles, the forward pair a little longer; no orbital bristles; vertex blackish, sides of front cinereous; frontal vitta blackish, velvety, moderately narrow, split behind on each side of ocelli; sides of face narrow, silvery-cinereous, rather thickly black hairy; facial depession silvery-cinereous, rather wide below, facial ridges bare, except a very few bristles just above vibrissæ, the latter decussate and inserted well above the oral margin; cheeks replaced under eyes by the cinereous, black hairy occipital area, also hairy in front, with bristles on lower and front borders; antennæ much shorter than face, blackish, third joint more brownish; first joint very short, second slightly elongate, bristly; third once and a half as long as second, but slightly widened; arista long, brown, slightly thickened about half its length, microscopically short pubescent, distinctly 3-jointed, second joint not elongate; proboscis apparently but half as long as hight of head, blackish, labella much developed; palpi flavous, dark at base, somewhat club-shaped, black bristly; occiput cinereous, densely gray hairy, with fringe of black bristles on orbital margins. *Thorax* widened, bluish black, slightly cinereous, hairy, bristly, with four quite

ll-defined black vittæ; humeri and pleuræ cinereous; scutellum broadly ...ny brown, narrowly blackish at base, with an apical decussate pair of macro-...hætæ, and two longer and one shorter lateral macrochætæ. *Abdomen* very ...ad oval, almost round, vaulted, flattened, covered with short black bristles, ... segment not shortened; color black, sides of second and third segments ... sometimes also part of first segment, apical half of anal segment ...rous, basal portions broadly silvery pollinose, except first segment; ...nents with a lateral marginal macrochætæ: third segment with ...ven (probably twelve normally) marginal macrochætæ; anal segment armed ...h somewhat weaker macrochætæ interspersed with bristles. *Legs* black, ...ora and tibiæ silvery, more or less bristly, hind tibiæ ciliate on outer border; ...s and pulvilli very elongate. *Wings* much longer than abdomen, narrowed ...ip, widening toward base, grayish, hyaline, without costal spine, third vein ... bristly; apical cell open, end ...ittæ before tip of wing; fourth vein bent ...n angle, without stump or ... ...ind cross-vein long, sinuate, nearly ...llel with hind margin, near... ...h ... of fourth vein; tegulæ whitish, hal-...s tawny. Length 8.5 mm.; of win... ...m

Described from one speci... ...ed from Mr. Charles Robertson, ...rlinville, Ill.

A ♀ specimen, which, for the present at least, I prefer to regard as this species, differs as follows:

Head fully as wide as thorax; front nearly one-third width of head, sides ...lden pollinose; frontal bristles normal, extending back nearly to vertex, the ...o posterior ones on each side (not counting vertical bristles) directed back-ward; the pair of bristles at each vertical angle much longer; two orbital bristles; antennæ a little longer, third joint larger, crooked, bowed outward; palpi more yellowish. *Thorax* not widened. *Abdomen* narrower, only a little broader than thorax, with no red on sides, the anal segment nearly all deep furvous, first segment without macrochætæ, second with a median marginal pair in addition to the lateral marginal one on each side; third segment with ten marginal macrochætæ, anal segment not so bristly. *Claws* and pulvilli but little elongated. *Wings* not so pointed toward tip; third vein spined at base. Length 8 mm.; wing 6.5 mm.

One specimen (Robertson), Carlinville, Ill.

This is not the genus *Masipoda* Br. and v. Bgst., but connects that genus with *Exorista*. It belongs in the vicinity of *E. tricolor* v. d. Wulp from Mexico.

Exorista flavicauda Riley. This species should be known as *Frontina flavicauda* Riley. Two specimens from Mr. Charles Robertson, collected in South Illinois, agree well with the description and figure, and belong to the genus *Frontina*.

LACCOPROSOPA* n. gen.

Belongs in the Tachininæ s. str. Has much the general facies of a Sarcophagid. Head, thorax and abdomen of nearly same width. Eyes bare, extending about two-thirds distance to the oral margin. Front somewhat prominent, about one-third the width of head, face much wider; a pair of bristles at each vertical angle, the inner long one directed inward and backward, almost decussate with the corresponding one on the other side, the small one directed outward; succeeding frontal bristles directed inward, decussate, except the posterior two pairs; three orbital bristles, sometimes a well developed fourth one; short hairs outside the frontal bristles. Sides of face of moderate width, with a row of bristles from the base of antennæ to the lower border of eyes, otherwise bare. Face much hollowed, not long, rather wide, facial ridges bristly nearly half the way up from the oral margin, the decussate vibrissæ being inserted in the midst of these, at a constriction of the facial ridges, and considerably removed from the oral margin; cheeks bare on forward portion, except for terminal bristles of row on sides of face, wide, nearly one-half the eye-hight, very widely replaced beneath the eyes by the hairy occipital area. Antennæ much shorter than the face; first joint very short, second about twice as long, or a little longer; third joint about twice as long as second, considerably widened and convex behind; arista thickened for half its length, minutely pubescent, distinctly 3-jointed, the second joint not elongate. Proboscis fleshy, about as long as hight of head, labella well developed; palpi moderately large, club-shaped, very considerably thickened at tip. Apical pair of scutellar macrochætæ strongly decussate, reaching about as far as to the base of third abdominal segment; a small discal pair in front of them, and two strong lateral pairs. Abdomen broad ovate, flattened, first segment hardly shortened; macrochætæ only marginal, on segments one to four. Legs rather long; claws and pulvilli considerably elongate. Wings longer than abdomen, rather broad, with small costal spine, third vein spined a short distance at base; apical cell ending a little before tip of wing, open; fourth vein bent at an angle, without stump, but with a slight wrinkle at the bend; hind cross-vein curved, well approximated to bend of fourth vein. Type, *L. sarcophagina* n. sp.

The wide cheeks of this genus exhibit, posteriorly, a peculiarly complete invasion by the occipital area, which almost entirely replaces the original genal surface below the eyes.

* Λάκκος (a hollow) + πρόσωπον (face).

Laccoprosopa sarcophagina n. sp. ♂ (?).—Black and cinereous. *Eyes* brown; front, face and cheeks cinereous, blackish in some lights, with a silvery lustre in others; frontal vitta dark brown or blackish, averaging one-third the frontal width, split behind enclosing the ocelli; antennæ dark brown, second joint lighter, very bristly, third joint blackish; arista very dark brown or blackish, except a section at end of thickened portion, which is yellowish; proboscis blackish, light brown toward tip; palpi reddish brown, blackish toward tip, black bristly; occiput cinereous, black bristly, particularly so on the genal portion below the eyes, where the bristles are longest, orbital margins with a fringe of bristles. *Thorax* bluish black, black hairy and bristly, with four cinereous vittæ, the median pair more distinct; scutellum, humeri and pleuræ bluish black, more or less shaded with cinereous. *Abdomen* blackish, shining, covered with short black bristly hairs, basal portions of segments more or less broadly and interruptedly cinereous pollinose, not showing in some lights, anal segment almost entirely cinereous; first and second segments each with a small, lateral macrochæta, and some macrochæta-like bristles on sides; third segment with a median pair, a lateral pair, and a single macrochæta between the median and lateral pairs, some longer bristles below; fourth segment with a strong lateral pair on each side, and several weaker median bristles. *Legs* black, faintly silvery, black bristly, except tarsi; claws and pulvilli somewhat elongate. *Wings* grayish hyaline, veins brown; tegulæ white, slightly silvery; halteres brownish. Length 7 mm.; of wing 6 mm.

Described from one specimen received from Mr. Chas. Robertson, Carlinville, Ill.

Phorocera edwardsii Willist. Scudd. Butt. N. E. 1921, pl. 89, fig. 25, ♂. —Black and cinereous. Head, thorax and abdomen nearly same width. *Eyes* light brown, thickly pubescent; front about one-third the width of head, prominent, golden or brassy pollinose on the sides, with some fine hairs outside the frontal bristles; frontal vitta very dark brown, blackish, about one-third width of front, widening behind, where it splits on each side of the ocelli; ocellar area with two pairs of bristles and a tuft of black hair, the front pair of bristles strong, directed forward and outward; a very strong bristle at each vertical angle directed backward, two nearly as strong exactly in front and similarly directed, the three on each side being in a straight line and equidistant from each other; no orbital bristles; the other frontal bristles weaker, directed inward, decussate to base of antennæ, extending downward on sides of face to below the base of third antennal joint (a little below middle of eyes); sides of face otherwise bare, silvery white, moderately wide; face receding, epistoma prominent; facial depression rather deep, wide, silvery white; facial ridges strongly ciliate nearly to base of third antennal joint, beyond the point to which the frontal bristles descend; cheek space rather wide, silvery, black hairy below, with some black bristles on lower and front margins; vibrissæ strong, decussate, inserted considerably above the oral margin; antennæ not quite as long as the face, blackish, second joint reddish yellow, black bristly before; first joint short, second but little longer, third about four times the length of second, of moderate and equal breadth; arista blackish, thickened for more than half its length, microscopically very short pubescent, distinctly 3-jointed, the second joint not elongate; proboscis hardly or about as long as the hight of head, moderately stout, brown or blackish, labella developed; palpi yellow, curved, somewhat

thickened on distal two-thirds, black bristly with some longer bristles on under surface; occiput cinereous, densely gray hairy, with a fringe of black hairs on orbital margins, very long hairs alternating with very short ones. *Thorax* silvery-cinereous, hairy and bristly, with four more or less distinct, rather narrow, black vittæ; scutellum a little blackish at base, broadly tipped with tawny brown, with a rather small, decussate apical pair of macrochætæ; just outside these a strong pair reaching to base or nearly to middle of third abdominal segment; two lateral macrochætæ on each side; humeri and pleuræ silvery-cinereous. *Abdomen* rather oval, covered with short, thick, black bristles, first segment somewhat shortened; color black, bases of all but first segment broadly silvery, fully covering the basal half; sides of second segment more or less reddish; first segment with a median marginal pair of macrochætæ; second with a median marginal pair, and a lateral marginal one; third with about ten marginal macrochætæ, six of these being on the upper side; anal segment well armed with discal and marginal macrochætæ. *Legs* black, femora silvery, tibiæ slightly so, femora bristly, tibiæ more strongly so; claws and pulvilli quite elongate. *Wings* a little longer than abdomen, not wide, grayish hyaline, very slightly tawny toward base, with costal spine, third vein spined at base; apical cell ending well before the tip of wing, open; fourth vein bent at an angle, with a well defined wrinkle at its bend; hind cross-vein oblique, somewhat crooked, nearer to the bend of fourth vein; tegulæ nearly white, halteres brownish. Length 6—9 mm.; of wing 4½—6¾ mm.

I believe that *P. appendiculata* v. d. Wulp is the same as this species. I refer four ♂ specimens here; one from So. Florida and three from So. Illinois (Robertson). All four, however, show a more or less faint rufous tinge on the sides of the second abdominal segment.

Aeroglossa hesperidarum Willist. Scudd. Butt. N. E. 1917.

I have one specimen of this interesting genus and species from Kansas. It agrees perfectly in every particular with Dr. Williston's descriptions.

Frontina aeroglossoides n. sp. ♂ (?).—Blackish, cinereous. Head, thorax and abdomen broad, of equal width. *Eyes* light brown, bare; front one-third width of head at vertex, wider before, blackish, cinereous on forward portions; frontal vitta brown, rather wide, cleft behind on each side of the ocelli; frontal bristles descending but little below base of antennæ, the rows widely divergent below; a pair of posteriorly directed bristles at each vertical angle, the outer smaller one also directed outward; next frontal bristle directed posteriorly, rest directed inward, slightly decussate; two orbital bristles; ocellar area clothed with black hairs, with two pairs of bristles, the forward pair longer, directed forward and outward; sides of face and front clothed with fine hairs; sides of face and upper part of cheeks golden pollinose, sides of face wide; cheeks one-third eye-hight, silvery and black hairy below, with a row of bristles on lower borders; face receding, silvery-white, epistoma somewhat prominent, facial ridges with a row of bristles extending nearly to base of third antennal joint; vibrissæ decussate, inserted well above the oral margin; antennæ shorter than face, first joint short, dark brown; second joint considerably longer, light

brown, black bristly before; third joint blackish, less than three times as long as second, rather narrow; arista brown, darker at base and tip, microscopically pubescent, moderately thickened most of its length, distinctly 3-jointed, second joint elongate, sometimes almost geniculate; proboscis fleshy, shorter than hight of head, black, labella brownish, well developed; palpi well developed, considerably thickened, curved up at tip, brownish yellow, black hairy with several black bristles on under surface before tip; occiput cinereous, gray hairy, with fringe of black bristles on orbital margins. *Thorax* above silvery-cinereous, hairy and bristly, with three blackish vittæ, indistinct in some lights, but distinct when viewed from behind, scutellum silvery-cinereous, broadly reddish yellow on apical portion, with three pairs of strong macrochætæ, a weaker apical pair between the hind pair; humeri and pleuræ silvery-cinereous. *Abdomen* blackish, silvery-cinereous, covered with short black bristles, broadly oval, first segment somewhat shortened, anal segment orange-colored; segments one to three with a slight median depression, giving the appearance, in a side light, of a median vitta; first segment with a lateral marginal macrochæta, and a median marginal pair; second with a median discal and marginal pair, and a lateral marginal one; third segment with a median discal pair, and eight marginal ones above, with about three on each side below on the venter; fourth segment with four marginal and a row of weaker discal macrochætæ; venter silvery, except the orange anal segment, with long bristly hairs. *Legs* blackish or brownish, silvery, except the tarsi, hairy; femora, and especially the tibiæ, with black bristles, stouter on the tibiæ; claws and pulvilli but little elongated. *Wings* longer than abdomen, grayish hyaline, veins brownish, with very small costal spine, third vein slightly spiny at base; apical cell open, terminating considerably before tip of wing; fourth vein bent nearly at a right angle, not sharply bent, but rounded, without stump or wrinkle, distal two-thirds of apical cross-vein curved backward; hind cross-vein long, oblique, a little crooked, nearer the bend of the fourth vein; tegulæ nearly white; halteres fuscous, yellowish at base. Length 10 mm.; of wing 8.5 mm.

Described from one specimen received from Mr. Chas. Robertson, Carlinville, Ill. This species may be looked upon as connecting the two genera, *Frontina* and *Aeroglossa*. It has the arista nearly as in *Aeroglossa*, sometimes subgeniculate, while it possesses the proboscis of *Frontina*. In general appearance it greatly resembles *Aeroglossa hesperidarum*. The whole fourth abdominal segment, however, is reddish or orange. It further differs from *A. hesperidarum* as follows: the cheeks do not have bristles, but they are clothed with fine bristly hairs. The sides of face are golden, and the first abdominal segment bears a median pair of macrochætæ on its hind margin, as well as the second segment, though they are weaker. This specimen, a ♂ ?, also has the third antennal joint scarcely three times the length of the second.

Siphona illinoiensis n. sp. ♀.—Deep golden, cinereous. *Eyes* dark brown, bare, nearly reaching the oral margin below; front and face nearly equal in width, occupying one-third width of head; front of a brassy-golden color

frontal vitta but little darker, occupying one-half width of front, cleft before and behind; frontal bristles descending only to base of third antennal joint; a pair at each vertical angle, the inner longer one directed backward, the outer shorter one directed outward and backward; next frontal bristle directed outward and backward, next backward, rest inward, but not decussate; two orbital bristles on each side; two pairs of ocellar bristles, posterior pair shorter, erect, directed a little backward and outward, anterior pair long, appressed, directed forward and strongly outward; face and cheeks silvery-white; sides of face extremely narrow, bare; cheeks rather narrow, restricted posteriorly beneath the eyes, bare with bristles on lower border; face nearly perpendicular, epistoma rather prominent; vibrissæ inserted a little above the oral margin, not decussate, a short bristle above and a longer one below them; antennæ quite as long as the face, first two joints light yellowish brown, second joint a little longer than first, very short bristly before; third joint blackish, over three times as long as second, widened, convex behind, straight before, posterior apical corner rounded; arista brownish, thickened more than half its length, minutely pubescent, distinctly 3-jointed, second joint strongly elongate, sometimes geniculate; proboscis very long, bristle-like, twice geniculate, apical portion folded back, light brownish yellow, blackish at distal geniculation, labella not developed; palpi rather slender, thickened at tip, yellow, black-hairy, with two black bristles on under surface before tip; occiput golden-cinereous, black-hairy, with a fringe of bristly hairs on orbital margins. *Thorax* and scutellum golden-cinereous, clothed with black bristly hairs, stouter posteriorly; thorax with a median pair of faint cinereous vittæ, becoming obsolete at suture; humeri and pleuræ concolorous; apical pair of scutellar macrochætæ decussate, reaching middle of second abdominal segment, two lateral macrochætæ on each side. *Abdomen* oblong-oval, first joint scarcely shortened; color deep golden, with an irregular, median, dark cinereous vitta, widening posteriorly on segments two and three, nearly obsolete on segment four, all segments covered with short, black, appressed hairs; macrochætæ only marginal; first segment with one lateral macrochæta; second with a median pair and one lateral one (frequently another macrochæta-like bristle, giving the appearance of a lateral pair); third with six macrochætæ, a pair on each side the median pair; anal with four macrochætæ above; venter golden. *Legs* light reddish golden, except tarsi which are blackish; black-hairy, tibiæ bristly, femora slightly so; claws and pulvilli short. *Wings* grayish hyaline, slightly longer than abdomen, with costal spine, third vein spined as far as small cross-vein; apical cell ending at tip of wing, narrowly open; fourth vein bent in a gentle curve, without stump or wrinkle; hind cross-vein slightly nearer to the small cross-vein than to bend, or about in the middle; tegulæ nearly white, halteres yellowish. Length 4 mm.; of wing 3 mm.

Described from two specimens received from Mr. Chas. Robertson, Carlinville, Ill.

PHASIOCLISTA* n. gen.

Differs from Schiner's description of *Clista* only as follows: Metallic dark green species. Eyes bare; face a little receding; sides of face very wide, fully as wide as facial depression, covered with

* *Phasia* + *Clista*.

rows of hairs, and with a somewhat indistinct oblique suture extending from lower border of eye to base of antennæ; cheeks nearly one-half the eye-hight, mostly bare; palpi quite well developed. Macrochætæ only marginal. Wings without costal spine; apical cell closed in border or narrowly open, ending just before tip of wing; hind cross-vein a little nearer the bend of fourth vein, or sometimes nearly in middle between the bend and the small cross-vein. Type, *P. metallica* n. sp.

This genus differs from *Phasiopteryx* Br. and Bgst. by the wide and hairy sides of face; the very wide cheeks; the shorter third antennal joint, which is but little longer than the second; only marginal macrochætæ; costal margin of wing not produced between second and third veins in ♂; and apical cell not open. It differs from *Ennyomma* Twns. almost wholly in the absolutely bare eyes.

Phasioclista metallica n. sp. ♂.—Shining, metallic dark green. Thorax and abdomen nearly equal in width, head much wider. *Eyes* rather large, brown, bare, closely approximated in front of ocelli, making the front very narrow on its posterior third or more, from whence it widens abruptly, the face being very wide, and, with the front, triangular; front a little prominent before, blackish on sides; some very weak frontal bristles directed inward, somewhat decussate, weakest posteriorly, not descending below base of antennæ; vertical and ocellar bristles very short, the forward ocellar pair the stoutest of all the bristles on the front and directed strongly forward, those at vertical angles directed inward; no orbital bristles; frontal vitta brown, very narrow, almost obsolete posteriorly, wider in front, longitudinally canaliculate; sides of face with reddish brown, shading above to blackish, silvery pollinose, clothed with rows of hairs; cheeks very wide, nearly one-half hight of eyes, reddish brown, sometimes shading to blackish behind, mostly bare, but with a few hairs on upper portion, with bristles on lower margin; facial depression one-third width of face, reddish brown; facial ridges bare above the vibrissæ, which are decussate and inserted very much above the oral margin at a constriction of the facial ridges; antennæ inserted about middle of head, very short, reddish brown, third joint darker; first joint very short, second a little elongate and somewhat bristly, third about once and a half as long as the second; arista blackish, sometimes partly brownish, thickened only at base, bulbous, indistinctly jointed, microscopically pubescent; proboscis black, partly brownish, not as long as hight of head; labella developed; palpi brown, or nearly black, apical two-thirds somewhat thickened, bristly; occiput black, a fringe of black hairs on orbital margins. *Thorax*, scutellum and abdomen shining, metallic, greenish black; thorax and scutellum hairy and bristly, abdomen covered with short black appressed bristles; the decussate apical pair of macrochætæ the longest on the scutellum, two lateral macrochætæ on each side; the abdomen much rounded in outline, vaulted, first segment not shortened; first and second segments without macrochætæ, third segment with about eight or ten marginal, anal segment with six or eight marginal. *Legs* black, femora and tibiæ somewhat bristly; claws and pulvilli elongate. *Wings* longer than the abdomen, narrowed toward tip, gray-s

hyaline, deeply tawny on basal and costal portions, without costal spine, third vein not spined at base; apical cell closed in border, slightly before tip of wing; fourth vein rounded at bend, without stump or wrinkle; hind cross-vein not straight, a little nearer the bend of the fourth vein; tegulæ deep tawny; halteres fuscous, tawny at base. Length 5.5—6 mm.; of wing 4.5—5 mm.

Described from two ♂ specimens received from Mr. Chas. Robertson. Carlinville, Ill., and So. Florida.

ENNYOMMA* n. gen.

Metallic dark green or blackish species, differing from *Clista* and *Phasioclista* chiefly in the hairy eyes. Head slightly wider than thorax and abdomen. Eyes more or less thickly pubescent, closely approximated in front of ocelli in ♂; front much widened before, somewhat prominent, frontal bristles weak, mostly on forward portions: no orbital bristles; sides of face as wide as facial depression, with rows of hairs; face hardly receding; vibrissæ situated well above oral margin at a contraction of the facial ridges, the latter bare. Sides of face and cheeks divided by a more or less distinct suture extending obliquely from lower border of eyes to base of antennæ. Cheeks nearly as wide as half the eye-hight, more or less hairy. Antennæ half the length of the face, third joint a little longer than second; arista very short pubescent, 3-jointed, second joint not elongate, third joint thickened at base. Proboscis short, fleshy, labella and palpi well developed, the latter nearly cylindrical, somewhat thickened toward tip, bristly. Thorax and scutellum with macrochætæ. Abdomen as wide as thorax, not elongate, rounded, first segment hardly shortened, macrochætæ only marginal. Legs bristly; claws and pulvilli of ♂ elongate. Wings longer than abdomen, narrowed toward tip, without or with a very small costal spine; apical cell open or closed in border immediately before tip of wing; curvature of fourth vein rounded, without stump or wrinkle; hind cross-vein sinuate, nearer to bend of fourth vein, or in the middle between the bend and the small cross-vein; ♀ unknown. Type, *E. clistoides* n. sp.

Ennyomma clistoides n. sp. ♂.—Differs from *Phasioclista metallica* as follows: *Eyes* thickly pubescent; second antennal joint bright rufous, third joint but little longer, dark brown; arista distinctly 3-jointed, not so bulbous at base; cheeks very wide; sides of face hairy, obliquely cut out below; palpi blackish. A short pair of median marginal macrochætæ on second abdominal segment, a bristly hair at sides; third segment with about ten marginal macrochætæ, last segment with about eight above. *Tibiæ* quite bristly. *Apical* cell

* Ἐννύμι to clothe + ὄμμα eye.

well opened just before tip of wing; hind cross-vein strongly sinuate, nearer bend of fourth vein; wings same shape, deeply tawny yellow on costal and basal portions; tegulæ tawny, partly whitish. Length 8 mm.; of wing 6 mm.

Described from one specimen from Mr. Chas. Robertson, Carlinville, Ill.

Genus *Myiomintho* Br. and Bgst., Zweifl. kais. Mus. W. iv, 138.—This genus seems to be very near *Anisia* v. d. Wulp. It is hardly possible to separate it from the description alone.

Clytia flava n. sp. ♂.—Flavous yellow, thorax brassy. Head wider than thorax and abdomen. *Eyes* bare, brownish, not large; front from vertex not quite half way to base of antennæ about one-fifth the width of head, widening from that point forward, at base of antennæ about three-sevenths width of head; sides of face and cheeks bright golden yellow, front duller golden; frontal vitta and antennæ, including arista, more deeply colored, flavous; frontal vitta moderately wide, with a row of weak bristles on each side extending only to base of antennæ, decussate in front; ocellar area shining black, with usual two pairs of bristles, a shorter inwardly directed vertical bristle on each side of the hind pair; some hairs outside the frontal bristles; no orbital bristles; sides of face moderately narrow, bare; cheeks wide, one-half the eye-hight, bare above, hairy and silvery on whole lower portion where invaded by occipital area, with a row of bristles on lower and front borders; vibrissæ not decussate, inserted well above the oral margin at a constriction of the facial ridges; facial depression rather wide, golden with a silvery sheen, facial ridges with a few hairs above vibrissæ; first antennal joint short, a little bristly; second considerably longer, bristly; third joint hardly more than once and a half as long as second, slightly widened, rounded at apex; arista thickened a little on basal third, microscopically almost imperceptibly pubescent, distinctly 3-jointed, second joint quite elongate; proboscis not very stout, hardly as long as hight of head, brown, labella flavous, well developed; palpi small, pale yellowish or whitish, subclavate form, slightly thickened except at base, black bristly on thickened portion. *Head*: occiput cinereous on upper half, pale silvery yellowish on lower half, gray hairy with fringe of black hairs on orbital margins. *Thorax* and scutellum brassy cinereous; humeri yellowish, pleuræ cinereous; scutellum more or less brownish yellowish on apical portion, with a decussate or not decussate apical pair of macrochetæ and a single lateral one; thorax hairy and somewhat bristly, mesonotum with two thread-like dark vittæ becoming obsolete at transverse suture, and outside them a less distinct one extending farther posteriorly but interrupted at the suture. *Abdomen* oblong, slightly vaulted, first segment not shortened; whole abdomen clothed with short black hairs, deep yellow or more flavous posteriorly, a more or less irregularly triangular, posterior, median black spot on second and third segments; first two segments each with a median marginal pair of macrochetæ, and a lateral marginal one; third segment with about ten marginal, anal segment with eight or more marginal macrochetæ; venter yellow, black bristly. *Legs* deep tawny yellow, black hairy and bristly, especially the tibiæ, tarsi darker; claws and pulvilli elongate. *Wings* longer than abdomen, moderately narrow, nearly hyaline, pale flavous on costo-basal portion, without costal spine, third vein usually slightly spined at base; apical cell narrowly

open or almost closed in border just at or very slightly before tip of wing; fourth vein curved at bend, without stump or wrinkle; hind cross-vein curved, more or less sinuate, nearer bend of fourth vein; tegulæ whitish, tinged with pale yellowish; halteres yellowish. Length 5.5 mm.; of wing 5 mm.

Described from two ♂ specimens from Mr. Chas. Robertson, Carlinville, Ill. This species approaches very closely the genus *Cenosoma* v. d. Wulp, but is, I think, better referred to *Clytia*.

ATROPHOPODA* n. gen.

Form rather narrow; head and thorax of equal width, abdomen at widest somewhat narrower. Eyes rather thinly, short hairy, apparently more thickly so on lower portions. Front at vertex about one-third the width of head, of ♂ slightly narrower; face of ♀ three-fifths the width of head, of ♂ one-half the width of head; frontal bristles descending in a row to the lower border of the eyes, almost to the vibrissæ; a long bristle at each vertical angle directed backward and a little inward, next frontal bristle directed upward and backward, the following ones directed forward and downward. Both sexes (?) with two orbital bristles on each side. Sides of face moderately wide, widening towards base of antennæ, with some minute short bristly hairs on anterior portion extending upward among the bristles on the front; cheeks wide, fully one-half the hight of the eye, very short antero-posteriorly, with a few very fine hairs, and some bristles on lower and lateral borders; vibrissæ decussate, inserted a little above the oral margin; face strongly receding; facial ridges bare, only one or two bristles above vibrissæ. Antennæ shorter than the face; first joint short, second a little longer, third more than four times the length of the second, very narrow, linear, the posterior apical corner rounded; arista distinctly 3-jointed, thickened more than half its length, clothed with short and delicate pubescence, second joint short, not much longer than wide. Proboscis short, not longer than hight of head, more or less fleshy, labella developed; palpi filiform, hardly thickened at tip. Scutellum with an apical decussate pair of macrochætæ, and a longer lateral one directed outward and extending to about the middle of the second abdominal segment. Abdomen ovo-conical, the first segment a little narrowed and somewhat abbreviated; macrochætæ only marginal, except on last segment. Legs rather elongate; anterior claws and pulvilli exceedingly small, minute, those of middle and hind feet well developed and distinct, but short and small. Wings with a

* Ατροφος (atrophied) + πους (foot).

pair of costal spines; apical cell closed in the margin, or very short petiolate, ending only a little before the tip of the wing; posterior cross-vein nearer the bend of the fourth longitudinal, which is angular and without stump or wrinkle; third vein spined on proximal one-fourth of its length. Type, *A. singularis* n. sp.

This genus seems to approach *Eggeria* somewhat. It differs very markedly, however. The arista is clothed with very short pubescence; the sides of the face are not broad; the facial ridges are bare, while the frontal bristles extend down in a row almost to the vibrissæ; the front is not prominent, and the face is not so receding as in *Eggeria;* the eyes are only thinly and short hairy, chiefly on their lower portions; the antennæ are shorter than the face, the palpi are filiform, and the abdomen is sub-conical.

Atrophopoda singularis n. sp. ♂.—Black, silvery and cinereous. *Eyes* reddish brown, short and thinly pubescent, almost entirely on lower portion; face and cheeks silvery pollinose; front broadly cinereous on each side of the frontal vitta, which is black and split behind, a prong running to each bristle on the vertical angle, thus enclosing the ocellar area; two pairs of ocellar bristles, a small pair at vertex almost straight, but inclined slightly forward and outward, and a somewhat longer curved pair in front inclined outward and strongly forward; some weak bristly hairs between the bristles; first two antennal joints blackish, second joint slightly tinged with flavous, bristly with two longer bristles on the front border below; third joint yellowish at base, remainder blackish, somewhat thinly but evenly covered with a very short, delicate pubescence; arista black; proboscis dark brown; palpi light yellowish, with some [illegible] bristles, two longer ones on the underside near the tip; occiput cinereous above, silvery on the sides and below, clothed with white hairs, with a fringe of [illegible] bristles on the orbital margins. *Thorax* and scutellum silvery cinereous above, clothed with a few very short scattered bristly hairs and stout posterior [illegible] clined bristles, with two broad heavy blackish or brownish black vittæ terminating abruptly at the scutellar suture; humeri and pleuræ silvery, some bristles below humeri inclined outward, forward and upward; some on posterior portion of pleuræ inclined outward and backward, except two lowest, the posterior one of which is inclined upward, outward and backward, and the anterior short one upward, outward and forward. *Abdomen* shining black, covered with short black, appressed bristles; bases of second to fourth segments silvery; first segment with a lateral marginal macrochæta; second with a lateral marginal one and a median pair; third with six marginal above, continued by others on the underside growing smaller toward the middle of the venter; fourth segment with a median discal pair, continued by discal bristles on the venter, a lateral sub-discal one on each side, and four marginal above with several below; venter largely silvery. *Legs* black; coxæ silvery and bearing some black bristles; femora slightly cinereous or silvery, covered with short black hairs and a few black bristles; front tibiæ with an anterior apical pair of short bristles, and usually a very short bristle or two toward the middle of the anterior surface; the other tibiæ with several variously disposed stouter bristles; anterior claws

and pulvilli atrophied, minute, the others short and small. *Wings* grayish hyaline, costal cells, most of basal cells, all the wing veins and their borders light honey yellow, or the veins somewhat darker; tegulæ whitish, border nearly concolorous or slightly yellowish; halteres fuscous, or somewhat brownish.

♀.—Differs by the head being wider below, the face much wider, and the wings entirely grayish hyaline, the veins only being yellowish. The eyes also are distinctly pubescent on the upper, especially the more forward, portions. The claws and pulvilli of the middle and posterior feet are very slightly longer, but can hardly indicate this as the ♂. Length 7 mm. or slightly more; of wing 5—5.5 mm.

Described from two specimens received from Mr. Chas. Robertson, Carlinville, Ill. This species, from the elongate legs, has quite a Dexiid aspect, but is evidently properly placed in the Tachinidæ, for the reason that the frontal bristles descend nearly to the vibrissæ, and the arista is only short pubescent.

EPIGRIMYIA* n. gen.

Belongs in the Phytoinæ, not far from *Drepanoglossa*, from which it differs by the perpendicular face and prominent epistoma, also by the short terminal tarsal joints. Head, thorax and abdomen differing but little in width, the head widest. Eyes bare, extending as low as the oral margin. Front about one-third width of head; a pair of bristles at each vertical angle, the outer small one directed outward and somewhat backward, the long inner one straight up but curved backward at tip; the next frontal bristle directed backward, the next forward, the rest inward meeting each other; no orbital bristles (in ♂). Frontal bristles not descending below base of antennæ, or but slightly; sides of face very narrow, bare; face slightly more narrowed than front, perpendicular, oral margin prominent, facial ridges bare; cheeks narrow, bare, with several long bristles below terminated by the vibrissæ, which are not decussate, and are inserted on the oral margin. Antennæ a little shorter than the face, first joint short, second considerably longer; third joint about three times as long as second, hardly widened, nearly straight on front border, convex behind; arista thickened on its proximal third, clothed with some extremely fine, hardly perceptible pubescence, apparently but 2-jointed, the basal joint very short. Proboscis elongate, bristle-like, nearly twice as long as hight of head, once geniculate, the distal portion curved or bowed, labella not developed; palpi sub-filiform, a little thickened at tip. Scutellum with four lateral macrochætæ, the apical pair atrophied, very small; none of them

* Ἐπίγρυπος (curved, of a beak) + μυῖα (a fly).

decussate. Abdomen elongate oval, vaulted, first segment not abbreviated, rather elongated; macrochætæ of abdomen all marginal, on segments one to four. Legs rather stout and somewhat elongate, tarsal joints very short in proportion, except metatarsi, which are strongly elongate. Wings broad, rather short, with costal spine, third vein with a few bristles at base; apical cell ending at tip of wing, closed in the margin; curvature of fourth vein rounded, without stump or wrinkle; posterior cross-vein perfectly straight, meeting fourth vein at a right angle, and nearer to the bow of the latter than to the small cross-vein; ♀ unknown. Type, *E. polita* n. sp.

This genus is near *Beskia*, but the proboscis is curved backward at tip, instead of forward, and the third joint of antennæ is not widened and truncate at apex.

Epigrimyia polita n. sp. ♂.—Black, wings fuscous. *Eyes* dark brown; frontal vitta wide, velvety black, pronged on each side of ocelli, the front on sides silvery; face and cheeks silvery white; antennæ black, first two joints with some black bristles, arista black; proboscis and palpi black; occiput cinereous with some short black bristles, and a fringe of same on orbital margins. *Thorax* and scutellum black, shining, faintly cinereous pollinose, covered with short hairs and posteriorly directed bristles; humeri and pleuræ silvery, with the usual bristles. *Abdomen* black, shining, covered with short, black, appressed hairs, bases of segments narrowly, faintly silvery in some lights; first, second and third segments each with a lateral macrochæta and a median pair; fourth segment with six macrochætæ; genitalia protruded. *Legs* black, hairy; coxæ and femora with bristles, tibiæ with some short macrochætæ, except front pair; claws and pulvilli slightly elongate, nearly as long as last tarsal joint, front ones longest. *Wings* fuscous, darkest at base and on costa; tegulæ white, borders concolorous; halteres fuscous. Length 4 mm.; of wing 3.5 mm.

Described from one specimen, collected June 1st on flowers of a daisy. Dixie Landing, Va. (District of Columbia.)

Celatoria crawii Coquillett, Ins. Life, ii, 235–36.

This new genus and species is described from California, and was bred from adults of *Diabrotica soror*. It is described as having five abdominal segments, which would properly exclude it from the Tachinidæ sens. str., and it would fall in the Phaniidæ by its other characters. The first or basal segment is, however, as long as the second, and the so-called fifth segment is probably not a segment properly speaking, but merely the more or less concealed caudal joint or hypopygium to be found in many Tachinidæ s. str. In the Ocyptera and Phaniidæ, as well as in the Phasiidæ, the first segment is much shorter than the second, and it is at the base of the abdomen that the additional segment must be looked for.

DREPANOGLOSSA* n. gen.

Belongs in the Phytoinæ, perhaps in the neighborhood of *Myothyria* v. d. Wulp. The arista, however, is distinctly 3-jointed, while the peculiar proboscis will at once distinguish it from other genera. Body rather narrow; thorax and abdomen about equal in width, the head very slightly wider. Eyes bare; front and face rather wide, from one-third to three-fifths the width of the head; distance between the eyes at vertex and cheeks the same. Sides of face bare, very narrow below, gradually widening to base of antennæ; cheeks bare, rather narrow, with some bristles on the lower and forward margin; the nearly decussate vibrissæ inserted on the oral margin. Frontal bristles descending but little below the base of antennæ, about to base of third joint; a pair of unequal length at each vertical angle, the shorter outer one directed outward, the other directed backward; next two frontal bristles on each side directed backward, remainder directed inward; two orbital bristles on each side directed forward. Face receding, epistoma somewhat prominent; facial ridges bare. Antennæ a little shorter than the face, first joint very short, second not elongate, third a little more than three times the length of second and somewhat widened; arista distinctly 3-jointed, thickened more than half its length, very short and fine pubescent, second joint not elongate. Proboscis quite widely extended, about three times as long as hight of head, bristle-like, once geniculate, the distal portion sometimes very strongly curved or bowed, usually considerably bowed, but sometimes almost straight, labella somewhat developed; palpi filiform, hardly thickened toward tip. An apical and lateral pair of scutellar macrochætæ, the former longer, not decussate, and reaching a little more than the base of second abdominal segment. Abdomen elongate oval, sometimes shorter oval, first segment not abbreviated; macrochætæ all marginal on segments two to four. Legs moderately long, tarsi rather elongate and delicate. Wings broad, longer than the abdomen, with costal spine, third vein spined only at base; apical cell ending very slightly before the tip of the wing, much narrowed on its distal portion, usually closed in the border, but often very narrowly open; posterior cross-vein sinuate, in the middle between the small cross-vein and the bend of the fourth or slightly nearer the bend, which is rounded and without stump or wrinkle. Type, *D. lucens* n. sp.

* δρεπάνη (sickle) + γλῶσσα (tongue).

This genus is readily distinguished from *Siphona*, to which it bears a slight resemblance, by the proboscis not being twice geniculate, and the arista with the second joint not elongate. It is apparently very near *Spiroglossa* Dol. of the East Indies.

Drepanoglossa lucens n. sp. ♂ ♀.—Pale tawny, abdomen translucent, thorax cinereous. *Eyes* reddish brown; front, face and cheeks pure silvery white; frontal vitta broad behind, entirely covering the ocellar area, narrowed in front to width of base of antennæ, occupying one-half the width of the front in the middle, light tawny yellow in color; two pairs of ocellar bristles, the hind pair shorter, inclined slightly outward, the front pair inclined forward and outward; antennæ same color as frontal vitta, light tawny yellow, the arista and distal half or so of third joint nearly black; first two antennal joints black bristly, third very minutely pubescent; proboscis usually much bowed, basal portion very light, slightly yellowish, distal half or more blackish; palpi light yellowish; occiput cinereous above, silvery white below, gray hairy, with a fringe of alternately short and long black hairs on the border from the vertical angle to the oral margin. *Thorax* and scutellum above light cinereous, tinged with tawny yellow behind and on scutellum, covered with short black hairs and longer black bristles directed backward; a median posteriorly divergent pair of grayish brown vittæ becoming obsolete near transverse suture; humeri and pleuræ silvery; two bristles below humeri directed outward, forward and upward; a vertical row of bristles directed posteriorly in front of base of wings, three bristles on next sclerite below, front pair directed outward and forward, and the hind one outward, backward and upward. *Abdomen* above very light on basal portion, becoming more or less brownish yellow toward the extremity, covered with short, appressed, black bristles; segments two, three and four darker on hind margin, a blackish median line extending from base to anal extremity; first segment with some longer bristles on the sides, but no macrochætæ; second with a lateral one and a median pair; third with six above and some shorter ones below; fourth segment with six macrochætæ; venter concolorous, anus dark. *Legs* very light yellowish, finely black hairy; coxæ with black bristles on forward surface directed posteriorly; femora with some weak black bristles, the longest being on underside of hind pair; tibiæ with some shorter bristles, tarsi thickly covered with very short black hairs; claws and pulvilli a little elongate, about half as long as last tarsal joint. *Wings* grayish hyaline, wing veins light tawny; tegulæ whitish, shining, margin narrowly opaque, white; halteres white. Length 4—5.5 mm.; of wing 3.5 to nearly 5 mm.

Described from thirty-three specimens taken on windows of Agricultural College building, June 29th to July 8th, Las Cruces, N. Mex. Some specimens differ in the frontal vitta being of equal width, wider than base of antennæ in front, occupying throughout one-half or more of the frontal width. The proboscis is often not so much bowed, sometimes nearly straight. The tarsi of some are shorter, particularly the distal joints, the claws and pulvilli being apparently a little less elongate. Yet these differences by no means constantly accompany each other; I am, therefore, uncertain of the

sexes. The smallest individuals have the front and face only one-third the width of the head, and, were it not for their short claws and pulvilli, I should consider them to be the males. I believe, however, that the males are the larger ones with longer claws, wider front, and more strongly bowed proboscis.

CERATOMYIELLA* n. gen.

Belongs in the *Phytoinæ*, in the section with bare eyes and petiolate apical cell. Of small size. Head about the width of thorax, abdomen much narrower. Eyes bare, reaching little more than two-thirds way to oral margin. Front occupying one-third the width of head at vertex, wider before, rather prominent; frontal bristles descending on sides of face to the cheeks, in a single row; some short bristly hairs outside frontal bristles; a bristle at each vertical angle, and the one next to it, directed backward; next pair directed inward and backward, decussate; next directed inward and forward, decussate; one orbital bristle directed forward; sides of face rather wide at base of antennæ, much narrowed below; face oblique, strongly receding, facial depression much lengthened, rather wide, facial ridges bare; cheeks very short, but high, almost one-half the eye-hight, extending considerably upward behind the eyes, bare, except bristles on posterior and lower borders; vibrissæ decussate, inserted a little above the oral margin. Antennæ as long as face; first two joints short, third joint much elongate, widened somewhat and thickened, six or seven times as long as the second; arista thickened for half its length, microscopically pubescent, 3-jointed, second joint not elongate. Proboscis short, fleshy, one-half as long as hight of head, labella well developed; palpi slender, club-shaped. Three pairs of macrochætæ on scutellum, the apical pair not decussate; the median pair the longest, reaching to middle of second abdominal segment. Abdomen narrow, elongate, conical, first joint not shortened; macrochætæ marginal on segments one to four, not very stout. Legs of moderate length. Wings reaching a little beyond abdomen, of moderate width, with small costal spine; apical cell ending but little before tip of wing, short petiolate; bend of fourth vein subangular, without stump or wrinkle; posterior cross-vein nearly straight, a little nearer to the bend of the fourth vein than to the small cross-vein. Type, *C. conica* n. sp.

* Κεραία (antenna) + μυῖα (a fly).

This genus agrees in many ways, especially in the characters of the head, with *Hypertrophocera*. But the apical cell ends very little before the wing's tip, and is petiolate; the abdomen is narrow and conical; and the species are of very small size.

Ceratomyiella conica n. sp. ♀ (?).—Small, black. *Eyes* brownish; front and face black, silvery; frontal vitta narrow, rich dark brown, with a narrow prong behind on each side of ocelli; cheeks light reddish brown, forward border silvery; antennæ brownish, first two joints and basal portion of third light brownish yellow, arista brown; proboscis light brownish, palpi pale yellow; occiput black, somewhat cinereous, with a fringe of short black bristles on orbital margins. *Thorax*, scutellum, humeri and pleuræ black, with a slight bluish cast, black hairy and bristly, sparsely silvery pollinose. *Abdomen* black, shining, clothed with short black bristles, bases of segments faintly silvery pollinose; first and second segments each with a median pair of macrochætæ; third and fourth segments each with a single lateral macrochæta and a median pair; some longer bristles on sides of first two segments, which may often resemble macrochætæ. *Legs* brownish, femora orange-yellow, tibiæ tinged with same color; femora and tibiæ with a few bristles; tibiæ blackish, claws and pulvilli slightly elongate. *Wings* grayish hyaline, costal border and extreme base yellowish, veins light; tegulæ whitish, halteres light brownish. Length 4.5 mm.; of wing 3.5 mm.

Described from one specimen received from Mr. Chas. Robertson, Carlinville, Ill.

Leucostoma atra n. sp. ♂.—Black, shining. Head a little wider than thorax. *Eyes* brown, bare, extending nearly as low as the epistoma; front not prominent, gently rounded in profile, from vertex to middle about one-fifth the width of head, nearly twice as wide at base of antennæ, face still wider; face and cheeks silvery white, front silvery shading to darker at vertex; frontal vitta velvet black or brownish black, rather narrow, expanded at each end; frontal bristles descending only to base of antennæ, all equal in strength and hight even to the pair at the vertical angles, nearly erect, mostly curved inward and decussate, with some fine hairs outside them; the usual two pairs of ocellar bristles, the front pair curved outward, not forward; no orbital bristles; sides of face narrow, bare, facial depression wide, face nearly straight, epistoma barely prominent; facial ridges bare, one or two short weak bristles outside the vibrissæ and a little above; vibrissæ decussate, inserted a good distance above the oral margin; cheeks invaded by occipital area under the eyes, which is cinereous and black hairy, with bristles on lower and front margins; antennæ short, reaching a little more than half way to oral margin, brownish, more or less silvery; first joint short, second and third about same length; second joint bristly beforelighter than third, which is blackish toward apex; arista slender, slightly thickened on basal third, microscopically short pubescent, rather indistinctly jointed, brownish, lighter at base; proboscis about as long as hight of head, moderately slim, black, with light brown well developed labella; palpi slender, a little thickened at tip, flavous, with some bristles on underside; occiput cinereous, densely hairy, with a fringe of black hairs on orbital margins. *Thorax* and scutellum shining black, with a bluish luster, hairy and bristly; scutellum with an apical

suberect, strongly decussate pair of macrochætæ, and two stronger lateral ones on each side. *Abdomen* entirely shining jet-black, clothed with black bristly hairs, a little narrower than thorax, rather conical, first segment not shortened: macrochætæ weak, only marginal; first two segments each with a median pair and a single lateral macrochæta; third segment with eight or ten, and anal segment with about six macrochætæ, which can be distinguished from the longer of the bristly hairs. *Legs* blackish, femora with long hairs, middle and hind tibiæ bristly; claws and pulvilli elongate. *Wings* much longer than abdomen, proportionally larger, without costal spine, grayish hyaline, slightly tawny at base and on costal portions, veins mostly tawny: apical cell long petiolate, ending a little before apex of wing; fourth vein bent at an obtuse angle, without stump or wrinkle: hind cross-vein bowed, nearly in middle between small cross-vein and bend of fourth; tegulæ very large, white; halteres light tawny, knob blackish. Length 4 mm.; of wing 3.5 mm.

Described from one specimen from Mr. Charles Robertson, Carlinville, Ill. This species bears a considerable resemblance to a *Hyalomyia*, in the form of the head, antennæ, rather weak frontal bristles, eyes, front, proboscis, palpi, abdomen, elongate tarsal claws and pulvilli, and even in the curved fourth vein. It is to be easily distinguished, however, by the rather weak but distinct macrochætæ of the abdomen; only four abdominal segments; the fourth vein not describing a perfect curve as in *Hyalomyia*, but somewhat angular; and the large tegulæ.

VANDERWULPIA n. gen.

Bears a considerable resemblance to the genus *Atrophopoda*, even agreeing with it in the minute, atrophied anterior claws and pulvilli. Agrees with it also in the form of the head, thorax, abdomen, legs, antennæ, proboscis and palpi. It differs from *Atrophopoda* as follows: Eyes bare; frontal bristles not extending below base of antennæ; arista rather long pubescent, almost plumose on median portion; facial ridges bristly for some distance above vibrissæ; cheeks not so wide. Abdomen strongly conical, except a little narrowed at base, not in the least flattened or vaulted, macrochætæ entirely marginal. Wings without costal spine; apical cell rather long petiolate, ending at a considerable distance before the tip of the wing; fourth vein at bend strong angular, with a distinct stump of a vein; hind cross-vein nearly straight. Type, *V. atrophopodoides* n. sp.

Named in honor of Mr. F. M. van der Wulp, of The Hague, Netherlands, who has done much valuable work on the Tachinidæ of the Central American and Mexican faunas.

Vanderwulpia atrophopodoides n. sp. ♂ (?).—Black and silvery, abdomen red. *Eyes* nearly black; front and face silvery white, blackish in some

lights; cheeks silvery white posteriorly, more or less blackish anteriorly; frontal vitta, antennæ and arista black; proboscis mostly black, labella brown, hairy; palpi light slate color; occiput cinereous, gray hairy, with fringe of black bristles on orbital margins. *Thorax* and scutellum bristly, sparsely hairy, silvery white, with broad, median, uninterrupted black vittæ reaching to apex of scutellum; humeri two and pleuræ silvery. *Abdomen* deep orange-red, bases of second to fourth segments rather narrowly silvery white pollinose, the whole covered with short, appressed black bristles; first and second segments with only a median pair of macrochætæ; third and fourth segments each with eight erect macrochætæ, and some shorter macrochæta-like bristles on the concolorous venter. *Legs* black, black hairy, silvery and bristly except tarsi and front tibiæ; claws and pulvilli not elongate. *Wings* obscure grayish hyaline, costal border and borders of veins fuscous; tegulæ pure white, halteres fuscous or brownish. Length 7.5—8.5 mm.; of wing 6—6.5 mm.

Described from two specimens taken July 20th. Las Cruces, N. Mex. This is a beautiful and striking species. Although the frontal bristles do not descend on the face and the arista is short feathered, this species seems to claim close relationship with *Atrophopoda*. The front claws and pulvilli in both are minute, and the general facies is strikingly the same. It is possible that a greater amount of material in this sub-group may demonstrate the affinities of one or both genera with the Dexiidæ.

Genus *Arthrochæta* Br. and Bgst., Zweifl. kais. Mus. W. iv, 134. This genus is not sufficiently characterized to stand. It is prefixed to a species called by the authors *A. demoticoides*, from Columbia, the short specific characterization of which at the end of the work throws no light on the matter.

Note on the Dexiid genus *Uromyia* Rob.-Desv.—The writer has published a note on this genus (Proc. Ent. Soc. Washington, ii, 100) calling attention to the fact that the name was first employed by Robineau-Desvoidy, and afterwards applied by Meigen, or a name so nearly like it as to be misleading and confusing, to a Phaniid. In order to avoid confusion in the use of the word, I propose for Meigen's genus the name *Neouromyia*.

Note on the Dexiid genus *Tropidomyia* Br. and Bgst.—Brauer and v. Bergenstamm (Zweifl. kais. Mus. W. iv, 119, 1889) have erected a genus which they called *Tropidomyia*, for a Dexiid from Syria. The name is preoccupied; Dr. Williston applied it to a South American Conopid, which he described in "Can. Ent." January, 1888. Brauer's genus must, therefore, be given another name, and I propose that of *Neotropidomyia*.

ERRATA.

age 108, lines 9, 29 and 39, for Dryobata *read* Dryobota.
" 150, line 4 from bottom, for blue *read* hue.
" 151, line 14 from bottom, for W. Var. *read* n. var.
" 151, at top, the following:

Lucicia eippus Cramer (Plate IV, figs. 1-11).
1779.—Cram., Pap. Exot. i, 84, pl. liii, fig. E.
delphinii Boisduval.
1832.—Bd., Cuvier's An. King. (Griffith) pl. ciii, fig. 6.
strigata Boisduval.
1832.—Bd., Cuvier's An. King. (Griffith) pl. ciii, fig. 7 (larva).
quercetí Her.-Sch.
1854.—Her.-Sch., Samml. Auss. Schmett. fig. 174.
quercicola Herrich-Schäffer.
1854.—Her.-Sch., Samml. Auss. Schmett. fig. 175.
tardigrada Clemens.
1860.—Clem., Proc. Acad. Nat. Sci. 160, *Nochelia.**
monitor Packard.
1864.—Pack., Proc. Ent. Soc. Phil. iii, 337.
1881.--French, Papilio i, 145 (larva).
bifida Packard.
1864.—Pack., Proc. Ent. Soc. Phil. iii, 338.

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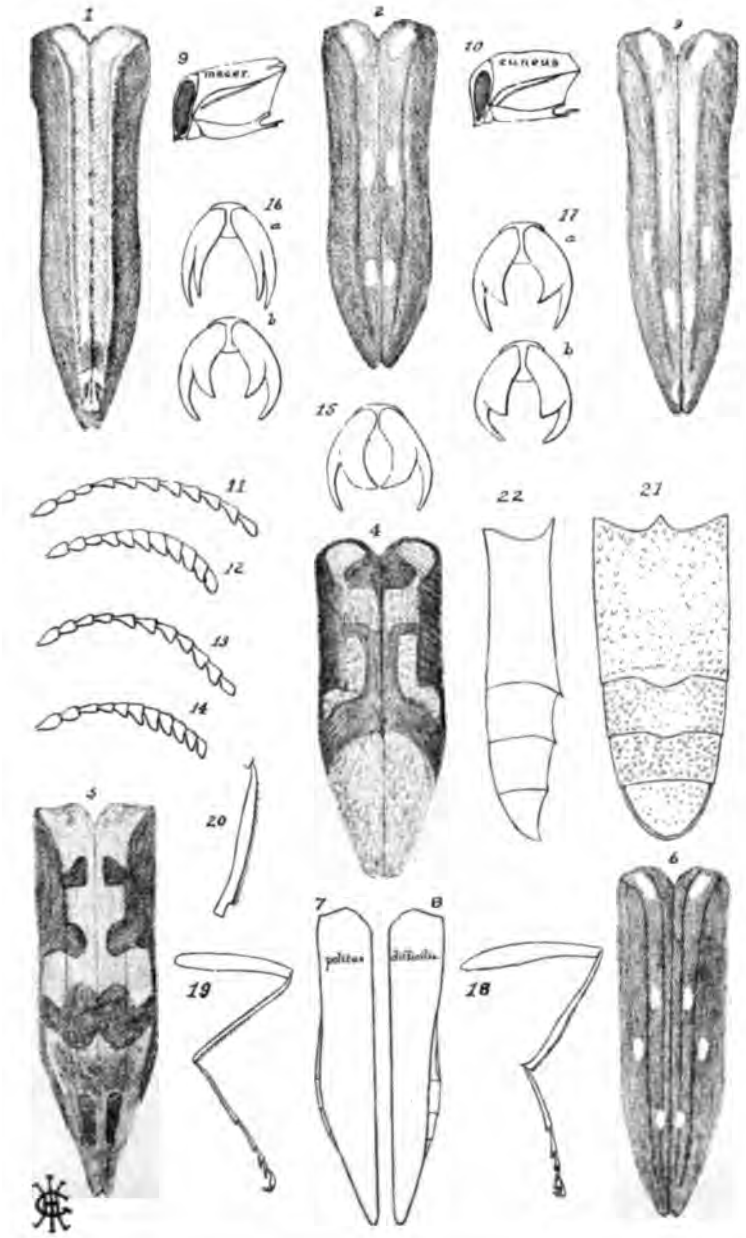
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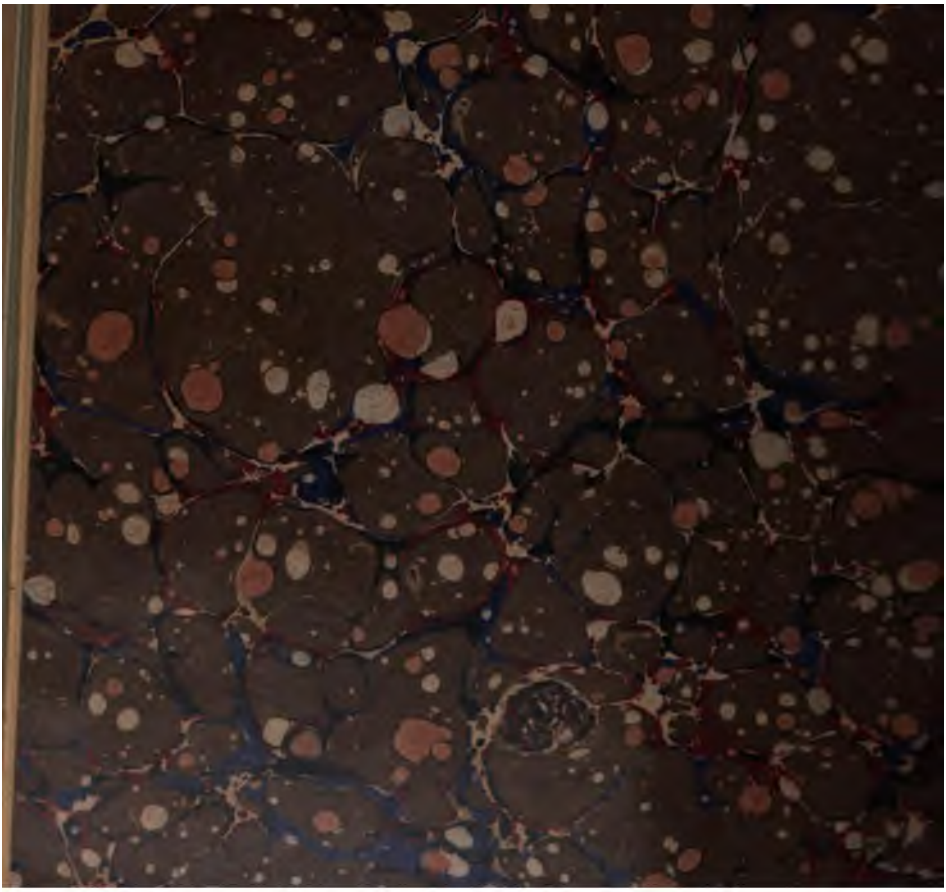

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